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Proposed Changes in T.U.C. Wages Policy

THE special economic committee of the Trades Union Congress met last Monday to consider further its revised wages policy. It will not meet again until it submits its report to the General Council of the T.U.C. on June 28. There is much uncertainty about the position, largely due to conflicting views on wage claims within the trade union movement itself, while much may depend also on the result of the ballot among members of the Confederation of Shipbuilding & Engineering Unions which is expected to be made known next month. This ballot will decide on arbitration or strike action and the situation arose out of its rejected claim for a wage increase of £1 a week. Should a strike result, its effect would be a most serious threat to the machinery of arbitration built up by industry in recent years. Workers involved in such a dispute might well total 3,000,000 and among them would be railway shopmen. There is almost certain to be some relaxation of the attitude of the T.U.C. to the wage freeze policy, which, indeed, never has been fully effective

in that claims for higher wages have been pressed continuously by individual unions. Meanwhile, the policy of wages restraint only narrowly approved at a conference of union executives six months ago, has been thrown out by the rank and file of many unions. There is ample evidence that this opposition is growing, largely because of an increase in the cost of living, and it would seem likely that some statement from the T.U.C. on policy may be expected before its annual congress, which is to be held in the autumn.

Railway Wage Claims Discussed

JUST how far the T.U.C. will be prepared to go in formulating any new policy remains to be seen. Some sort of interim statement at the present time might help to stem the rising tide of claims. Many arguments will have to be settled and the claims of skilled workers in craft unions will have to be considered as well as the claims of workers in the lower pay scale. The most insistent demand in recent months has been on behalf of the latter group and in this the National Union of Railwaymen has been the most pressing—and also the union most critical of Government policy. The claims of the N.U.R. for wage increases for the lower paid workers, including a £5 weekly minimum, was rejected by the Railway Staff National Council on April 14, and, later, Mr. J. B. Figgins, General Secretary, N.U.R., with the purpose of discussing the claims, secured an interview with Sir Eustace Missenden, Chairman of the Railway Executive. Several meetings between Members of the Railway Executive and trade union officials have been held since and the talks have been continued this week. Mr. Figgins has done little to further the cause of the lower paid worker by his destructive criticism of the Railway Executive and the T.U.C. wage freeze policy and his argument that increased revenue from freight charges justifies higher wages shows that he displays complete lack of appreciation of the situation.

Mr. G. B. Howden's Message to C.I.E. Staff

ON assuming the position of General Manager of Coras Iompair Eireann, Mr. G. B. Howden, who is also General Manager of the Great Northern Railway (Ireland), issued a message to each member of the C.I.E. staff. He stressed that the proper functioning of the many different activities of the company, with its staff of about 22,500, was essential if it was to provide an "efficient, economical, and convenient system of public transport." Each employee could help to establish public goodwill in support of the company's services. The undertaking could never function properly without harmony between staff, officers and management; it would become inefficient and public support would lessen. The greater the public support, the more money the company would earn, and the more could be done to maintain and improve conditions of employment. The company's officers would do their utmost to help members of the staff to give their best in their joint task of making C.I.E. a first-rate transport undertaking. In all industries, concluded Mr. Howden, worthwhile results came only from the co-operation of all employees, and, to that end, he hoped to have frequent opportunities of becoming acquainted with the staff to establish mutual respect and understanding, vital to the smooth working at which they should all aim.

British Railways Workshops Economies

THE number of staff employed in the main workshops of British Railways now totals more than 80,000, and there are about 160 different grades. The claim is made in the June issue of the *British Railways Magazine* that unification has enabled workshop practice and performance to be considered as a whole and at the same time has promoted a spirit of friendly rivalry between works. Another advantage claimed for unification is that it can make possible substantial economies by standardisation of tools and equipment and by concentrating certain jobs on the most suitable works. In 1951, the first of the new standard locomotives will be out, and it has been possible to make allocation for building without regard

to where the locomotives are required to operate; thus full advantage can be taken of shop capacity in the minimum number of works, with a corresponding reduction in the number of jigs, tools, and so on. Works of one Region can do, and are doing, work for other Regions. The L.M.R., for instance, is to press the flanged plates for boilers required for 103 locomotives to be built at Darlington, Swindon, Crewe, and Derby during 1951. The Western Region is to cast the cylinders for 74 locomotives being built at Swindon, Derby, and Brighton during 1951.

Paris Metropolitan Railway Jubilee

THE celebrations now being held in Paris to commemorate the jubilee of the Paris Metropolitan Railway and outlined in our April 28 issue, are in advance of the fiftieth anniversary of the opening of the first section, between the Porte de Vincennes and the Porte de Maillot, which took place on July 19, 1900. The system now totals 115 route-miles and forms one of the most ramified underground railways in the world. It was built mostly on the cut-and-cover principle although some sections were tunnelled by roof shield. The sub-surface construction and the consequent ease of access to the stations soon made the railway popular. The gradients and curves are severe, and a restricted loading gauge was adopted, as the Paris municipality, which built the lines but leased them to a company to work, wished to keep them for purely local traffic and avoid the possibility of through trains from the main lines. In recent years, the "Metro" has extended beyond the city limits; it operates the Sceaux line, formerly a steam suburban line of the Paris-Orleans Railway and electrified on the overhead system as distinct from its own third rail. Long-term plans include deep level lines under the city for full-size stock linking existing suburban lines. The railway is now administered by a board which also controls the bus services, and which, as stated elsewhere in this issue, is to be the subject of a Government Commission.

Overseas Railway Traffics

THE decline in Antofagasta (Chili) & Bolivia traffics which persisted throughout May appears to have been arrested, for the receipts for the week ended June 4 showed an increase of £16,960, compared with the corresponding week of last year. The decrease of aggregate traffics on the Antofagasta now stands at £135,400. Paraguay Central receipts continue to show advances, for the week ended June 2, an increase of G119,390, making an aggregate increase of G2,288,892. Peruvian Corporation traffics at the end of 48 weeks showed an increase of S1,515,689 on the Peruvian Section and a decline of Bs.1,225,623 on the Bolivian Section; the aggregate traffic receipts were up by S18,415,630 and Bs.10,536,314 respectively. Gold Coast traffics for the last week of the 1949-50 financial year showed a drop of £8,915, but on aggregate were up by £154,946. The Costa Rica Railway traffics, which suffered heavily as the result of flood damage to the line, continue to decline; in the 43rd week there was a decline of £156,386, bringing the total decrease for the year to £1,679,807.

Improved Vans for Fish Transport

AN improved design of insulated van for the transport of fish has been evolved by British Railways and the Darlington Works of the North Eastern Region has recently commenced the construction of 400 of these vans. The most noticeable departure from previous design is the provision of airtight inside sliding doors, as opposed to hinged doors, because none of the roads had sufficient space to allow hinged doors to be operated when two trains were marshalled side by side. Orthodox one-piece outside sliding doors fitted to former vans were found to be difficult to operate from ballast level on account of their weight. The doors being fitted on the present case are the result of a number of experiments and they are of sandwich construction manufactured of 12 s.w.g. thick light alloy with

1½ in. thick Onazate between the inner and outer sheets. A system of flexible gaskets has been evolved which ensures the doors being airtight when closed. This has been made possible by fitting strips of rubber compound and these strips at the back edges of the doors are fixed to fillets on the body side to form an airtight joint when in contact with an angle piece fitted to the door. Further details of the vans appear in an article elsewhere in this issue.

Prevention of Snowdrifts

THOUGH few areas of the British Isles are subject to heavy snowfalls every winter, traffic delays caused by snow frequently result in serious dislocation of rail and road services, which may also involve heavy expenditure in clearance work. Moreover, as was pointed out by Mr. Donald L. Champion in an article in our issue of January 16, 1948, there are indications that snowfalls in Great Britain are tending to become heavier. Snowdrifts present the main problem, but, provided the lie of the land and the direction of the prevailing wind are favourable, fences scientifically built will prevent drift. Recently a paper* has been published on this subject which includes a survey of existing technical literature on the problems, and, although intended primarily for the use of road engineers, there is much to interest a far wider audience. The paper explains how drifts are formed and gives illustrations of various types of fences designed for road or railway use. Authorities who may wish to try out snow fences during next winter have, therefore, ample time in which to make the necessary preparations.

New Locomotives for the Queensland Railways

THE development of the great area of the State of Queensland since the first settlement in 1824 has been restricted by the long lines of communication, especially into the tropical north of the State. In recent years Australia has become more closely associated with the mother country and the strengthening of these bonds has promoted an increase in trade. During the war years, the Queensland Railways were taxed to the utmost, and the pressure to which they were subjected proved the essential part that a railway must continue to play in the development of the more sparsely populated parts. The Queensland Government has appreciated the important role of its railway system and legislative action has been taken to improve and safeguard this backbone of its transport facilities. It was realised that the prerequisite of successful railway operation was adequate supply of locomotive power. To meet her needs in this direction, Queensland ordered from a British manufacturer 30 powerful Beyer-Garratt locomotives of the most modern design, which are fully described elsewhere in this issue. These will be the first British-built locomotives to be delivered to this territory for very many years. The tractive effort of the locomotives is 32,770 lb., which is nearly 50 per cent. higher than the most powerful engines at present in use on the Queensland Railways, and when placed in service they will enable the railway to dispense with assisting engines on heavier gradients.

The Collision with the "Golden Arrow"

THERE was no dispute about any point in connection with the inquiry which Lt.-Colonel G. R. S. Wilson held into the accident to the up "Golden Arrow" express at Victoria Station on December 9, 1949. As our summary of his report shows, a light engine coming in ready to work the empty stock back to Stewarts Lane sheds, failed to stop at the inner home signal, where the driver, who was prepared to stop but observed it only at the last moment, thought the adjacent shunt signal was "off" and continued forward. The express overtook him at a cross-over and his engine was forced foul of the down local line

* "Snow Fences." Road Research Technical Paper No. 29. Published for the Department of Scientific & Industrial Research by H.M. Stationery Office. Price 1s. 9d.

from the Central Section portion of the station, the smoke deflector grazing the last six coaches of an outgoing electric train to West Croydon. The light engine driver made no attempt to excuse his failure and could not account for it. He had a very young relief fireman and did not wish to rely on him for signal observation, but he could have seen the inner home gantry in good time by crossing the footplate.

South African Railways in 1949

THE report of the South African Railways for the calendar year 1949 shows that the volume of traffic conveyed by rail during the year was greater than ever before. (The general manager's report for the financial year ended March 31, 1949, was summarised in our issue of May 12 last.) The tonnage of imported goods rose to unprecedented heights, particularly during the period June-August, 1949, and records were established in the export of manganese, and of citrus and deciduous fruit.

During the year a large part of the Union suffered one of the severest droughts in its history, which not only caused an exceptionally heavy demand for wagons for the conveyance of livestock, lucerne, and so on, but also hampered operating arrangements, as the usual sources of locomotive water supplies dwindled and had to be supplemented from elsewhere.

The large number of new wagons placed in service enabled the Administration to meet most transport requirements, but it is still difficult, states the report, to meet the demand for specific types of wagons. The total tonnage of goods of all classes, including livestock and free-hauled traffic, during 1949 was 58,537,758, compared with 54,681,056 tons in 1948, an increase of 7.1 per cent. In August the peak loading figure of 5,523,184 tons was reached.

The revenue derived from the various classes of traffic during 1948 and 1949 is shown in the table appearing below:

	1948 £	1949 £
Passengers	13,503,806	13,806,953
Goods	43,604,131	48,405,854
Coal	6,823,966	7,812,643
Livestock	1,384,217	1,604,168
Total	65,316,120	71,629,618

Suburban passenger traffic again showed an increase, due mainly to the greater number of third class passengers. First and second class long-distance journeys tended to fall. This also was more than compensated for, however, by the increase in the number of third class journeys. The number of passengers carried was: suburban 228,235,973 (1948, 221,895,249); and long-distance 29,595,504 (1948, 29,886,383), making a total of 257,831,477 (251,781,632).

The total number of locomotives, coaches, and wagons in service at the end of 1949 was as follows:—

Locomotives	
Steam	2,536
Electric	218
Coaches	5,217
Wagons	
Bogie	42,306
Four-wheel	32,761

Particulars of locomotives and rolling stock which were on order or were authorised as at December 31, 1949, are:—

Overseas	
363 locomotives and 124 electric units	
643 coaches	
4,415 wagons (including 1,500 cattle and 500 fruit wagons)	
South African Firms	
4,000 wagons	
Railway Workshops	
2 locomotives	
918 coaches	
7,117 wagons (including 2,250 cattle and 1,200 fruit wagons)	

Maintenance of Railway Works

IN a paper on maintenance considerations in the design of railway works presented to the Institution of Civil Engineers on May 9, Mr. L. E. Hawkins, Assistant Engineer (Bridges & Structures), London Transport Executive, said that the problem of maintenance arose chiefly from the effects of rainwater, difficulty of access to parts of structures, movements due to temperature changes, and the use of structures for purposes different from, or additional to, those for which they were designed. When the design of works affected earth surfaces it sometimes happened that careful design of the earthwork was omitted and the finishing of the earth surfaces left to be settled on site.

It is probable that, when any excavation is to be done on or near an existing slope, the workmen will, unless directed otherwise, spread surplus material on the slope or in such a way as to alter the flow of water on the surface. The designer should consider this possibility and specify on his drawing where spoil can safely be deposited. A matter which is receiving more attention is the sowing and planting of vegetation. Hitherto, the control of vegetation has been left as a matter of maintenance only, with no money provided in connection with new work for planting.

Mr. Hawkins said that the first question which came to mind in the consideration of under-line bridges was that of the method of supporting the track. Most engineers will now agree that normal cross-sleeper track with ballast on a continuous deck is the best answer, but proper arrangements must be made for rainwater. It is useless to provide a slight fall on the deck and expect water to run off as if there were no ballast on the surface. Sufficient fall cannot be provided to allow water to run off the surface between the ballast and the bridge deck; some water will drain slowly out of the ballast at open edges or at the ends, but the bulk of the rainfall will be retained in the ballast until it evaporates. There is at times, therefore, a head of several inches of water-pressure on the deck, and, unless this deck is impervious, water will drip through. If the deck is of steel, serious local corrosion will result. Mr. Hawkins suggests that with such methods of construction, a complete tanking of the deck is advisable, with edges turned up at least to top-of-sleeper level, preferably a little higher.

Unfortunately, many railway bridges in Great Britain have skew spans. Square spans are preferable for maintenance, but the extra cost involved can seldom be justified. Where the angle of the skew is large, the floor steelwork can be arranged with short cross-girders resting at one end of the abutment; with longitudinal rail-bearers resting at one end of the abutment, or with a skew end cross-girder connecting the ends of the main girders and picking up the short cross-girders or longitudinals. The advantage of the last-mentioned method is that the deck is neatly finished and supported clear of the abutment; there are no intermediate bearings to interfere with the drainage and ballast walls, and the erection is simplified. The great disadvantage is that much extra steel is required.

When old girders are removed, the ends are usually found to be the most corroded parts, owing to their having been inaccessible for cleaning and painting. Steelwork at abutments and piers should be either permanently cased with good quality concrete or sufficiently open for all exposed parts to be accessible for painting and inspection. Complete encasement of steel girders in concrete adds a great deal of weight, and the cost cannot, as a rule, be justified by the resultant saving in maintenance. The author prefers to leave the flanges of steelwork exposed for painting and inspection, except where excessive corrosion is anticipated. He considers that in all cases where it is difficult to reach the underside of a steel bridge, particularly at water gaps, the provision of an inspection gantry should be considered.

Referring to over-line bridges, Mr. Hawkins said that the number of services for which space was required under footways seemed to be constantly increasing, and it was therefore advisable to make pipe bays of as large a size as could reasonably be fitted into the design, even though

not many services might exist at the time of the construction. It was also important that the roadside of parapets should be flush without any footholds, that the ends should be free from convenient steps, and that the top should not be easy to sit on or walk along.

For light structures, such as footbridges, small I-sections and channel sections are sometimes used without regard to the thickness of the metal in the webs. Often a $\frac{3}{8}$ -in. minimum thickness of metal is intended, in a design which includes sections with only $\frac{1}{2}$ -in. webs, and these do not give sufficient margin for corrosion losses. On electrified lines with little steam traffic, light structures to carry cables and signals can have $\frac{5}{16}$ -in., or even $\frac{1}{4}$ -in., as the minimum thickness with reasonable security, but for economy the thickness adopted should be worked to consistently so that the whole structure has the same life. The use of steel joists, with concrete casing and with seatings for slabs formed on their lower flanges before erection, may be economical for rapid construction over existing lines. If such a deck is not well tied together by reinforced concrete cast *in situ* over the pre-cast units, there is a danger that slight movements between the parts will cause the tanking to crack and let water through the joints.

Where steam engines run, smoke baffle-plates are now generally fixed under all exposed steelwork. These can be of painted steel—in which case they will require frequent inspection and replacement as corrosion renders them insecure—or they can be of corrosion-resisting materials. Some of the latter type are now being tried by London Transport in the comparatively few places where smoke corrosion is serious. One type which has been used satisfactorily for several years consists of steel plates, generally with turned-down edges, lined with flat asbestos-cement sheets. The cleats or other fixings for the steel sheets are attached by countersunk rivets or welds, and the asbestos sheets covering the whole underside of the steel are fixed by copper rivets. More recent trials are being made with steel protected by metallising, with steel sprayed with aluminous cement-mortar, and with plastic sheets.

The problem of the designer of railway works is, in broad terms, to provide for the shaping of part of the earth's crust in such a way that it shall remain stable under the action of the forces which are expected to act on it. The forces with which he primarily concerns himself are gravitational in origin, though he naturally takes account of temperature forces in long structures. The paper also dealt with masonry, concrete, and miscellaneous structures. It was suggested that the designer should put to himself certain questions for the purpose of checking his design to ensure that it covers the requirements of the problem.

Mechanical Discharge of Rail Wagons

THAT the number of wagon-emptying operations carried out annually in this country approached 40,000,000 was the opinion expressed by Mr. G. W. Grossmith, Managing Director of Strachan & Henshaw Limited, in a paper on the mechanical handling of rail wagons read at the convention held in conjunction with the recent Mechanical Handling Exhibition. Many fuel consuming plants, said Mr. Grossmith, required unloading rates far higher than could be obtained by hand or hand-assisted unloading, except by multiplication of machines or men. A modern power station required approximately 3,000 tons of coal a day, which if rail-borne represented 300 wagons, since extensive tests had shown that the average load did not exceed 10 tons. It had been found that the most effective way of unloading wagons at those high capacities was by bodily inversion or up-ending.

The tilter and semi-tippler are not high-capacity machines; they only provide mechanical assistance to hand discharge. The tilter will, however, enable the same number of men to double their output. With a semi-tippler one man can unload free-flowing coal at the rate of 3 tons an hour. These two machines take up very little space. End tipplers must be in pairs, unless a turntable is used in conjunction with a single tippler on account of the wagons having a door at one end only, and the capacity of a pair of end

tipplers when discharging coal is approximately 150 tons an hour. For the highest rates of unloading, it is usual to rotate wagons so that they discharge sideways, instead of endways, which avoids opening wagon doors, though it introduces the need for supporting the side and top of the wagon during the operation. Wagons vary in height and width, and this must be allowed for, and the fenders or clamps need to be self-adjusting to suit the variations, with sideways rotation, there are no catches to undo and refasten, and the spotting position is the same for all wagons.

Mr. Grossmith said that the rotary tippler provides sideways rotation in its simplest, or at any rate in its cheapest, form, and consists of a cage into which the wagon is pushed, and which is then revolved to an angle sufficient to empty the wagon. Frequently, the rotary tippler is installed, but there is a growing preference for the side discharge type, as that has two advantages over the rotary, namely, a clear passage for rolling stock up to loading-gauge size and a higher point of discharge. A characteristic feature is that the pivot is well to one side, resulting in the wagon being raised and moved laterally as it rotates. The saving in depth of excavation required for the hopper compared to the rotary is 8 ft.

Other methods of wagon discharge were referred to in this paper, including the tippler hoist, by which means wagons can be discharged at almost any height, thus enabling considerable storage to be carried above ground level and avoiding the excavation which a side-discharge tippler requires for its associated hopper. A tippler hoist is generally counterbalanced to equalise the load on the driving motor, whether hoisting or lowering, and current consumption for a tippler hoist is, therefore, moderate. Mr. Grossmith also referred to the mobile tippler, a recent development. This machine, being wheel mounted, can move along a railway track and discharge wagons at any point alongside the rail. The machine, which may be diesel or electrically driven, can handle wagons at the rate of 20-30 an hour. While each method of mechanical discharge presents its different problem, they all reduce man-hours and ensure a quicker turn-round of wagons.

Improving Rhodesia's Outlet to the Sea

WITHIN the next three months, a party will survey routes for new lines in Southern Rhodesia to shorten the routes between Bulawayo and the Indian Ocean. The Economic Co-operation Administration will pay the dollar costs, put at \$57,000, and the Southern Rhodesian and Portuguese Governments, the non-dollar costs, estimated at \$13,000.

Last Saturday the British, Portuguese, and Southern Rhodesia Governments signed a 20-year convention relating to Beira port and the Beira Railway. Portugal agrees to maintain the port and railway in a state of efficiency adequate to handle traffic from the Rhodesias, and Britain and Southern Rhodesia guarantee a sufficient volume of traffic. A joint advisory board will administer the port, which will be made a free zone.

The three-months survey will include: port improvements at Beira and Lourenço Marques; a possible link between West Nicholson, terminus of a branch from Bulawayo, and Beitbridge, railhead of the South African Railways on the Limpopo River, with improvement of the existing Beitbridge-Lourenço Marques line; and an alternative link between either West Nicholson or Shabani and Guija, in Mozambique on the Limpopo and a branch from Lourenço Marques.

It is understood that the Portuguese have already under consideration a coast railway between Beira and Lourenço Marques, which could be connected with new lines from West Nicholson, Shabani, or elsewhere in Southern Rhodesia. Schemes have already been put forward for considerably shortening the Bulawayo-Beira route by a cut-off between Umvava and Odzi, and for doubling the Salisbury-Beira section, but these, although of great value in reducing the length and time of haul to Beira, would not relieve congestion at the port.

The new survey is additional to the E.C.A. technical assistance project for the recently-completed survey of a railway connection between Rhodesia and East Africa.

In a speech in Salisbury last Friday, Sir Godfrey Huggins, Prime Minister of Southern Rhodesia, besides stressing the importance of a railway from Rhodesia to Lourenço Marques, referred to the long-contemplated West Coast outlet for Rhodesia. This would be most costly, and it was necessary to await the African transport conference at Pretoria next October to see whence financial support might be forthcoming.

Western Australian Government Railways

THE report of the Western Australian Government Railways Commission for the year ended June 30, 1949, shows an excess of working expenses over earnings of £1,487,410. When interest of £1,063,023 is added, a deficit of £2,550,433 is disclosed; that for the previous year was £2,017,437, so that the position retrogressed to the extent of £532,996. Earnings totalled £5,214,844, an increase on the previous record receipts for 1947-48 of £4,598,896. The freight and fare increases, by an average of 20 per cent., from September 1, 1948, were partly responsible for this increase. Working expenses, however, continued to rise, reaching a total of £6,702,254.

Increased costs, due to industrial pay awards and increased prices of materials generally, have had a marked influence on the position. The drought throughout a large part of the State during the year (which at one stage necessitated the haulage of nearly 3,000,000 gallons of water per week for locomotive purposes) entailed heavy cost besides restricting earning capacity by taking out of general service much of the available locomotive stock. The increase in charges referred to above was well below the amount necessary to bridge the gap between expenditure and revenue; further small increases, recently introduced, of some 7½ per cent. on general merchandise, and rather more on wheat and superphosphates, will not nearly meet the deficiency.

The following are some of the more important figures:—

	1947-48	1948-49
Mileage open	4,348	4,321
Train-mileage	7,266,209	7,181,147
Passenger-journeys	14,044,299	12,979,098
Goods ton-miles	415,988,184	393,524,755
Average staff employed	10,203	10,865
Passenger receipts	£ 1,138,834	£ 1,237,304
Goods receipts	3,159,860	3,634,680
Miscellaneous	300,202	342,860
Total receipts	4,598,896	5,214,844
Working expenses	5,570,000	6,702,254
Deficit	971,104	1,487,410
Interest charges	1,046,333	1,063,023
Deficit	2,017,437	2,550,433
Operating ratio... ..	Per cent. 121	Per cent. 129

Paying goods tonnage decreased from 2,700,097 to 2,573,964, while livestock tonnage increased from 157,476 to 162,756. The average haul was 143·8 miles, a decrease of 1·8 miles. These figures were affected by the water haulage and but for this record ton-mileages might have been anticipated, as much bulk traffic, such as wheat and fertilisers, which would normally have been railed, was road hauled to the coast. The necessity to use old and inefficient locomotives, with the abnormally long time occupied in maintenance, further hindered the Department's efforts, but an easement in the position is hoped for when new locomotives on order from Great Britain are delivered during the current year.

Construction of the new diesel-electric train sets, to be known as the "Wildflower" class, was seriously impeded by delayed delivery of parts from overseas, the shortage of coppersmiths, and interruptions to power supplies. Subsequently, however, the first set was completed and issued to traffic, and two more were scheduled for delivery by the end of the year. One of the sets was illustrated in *The Railway Gazette*, October 28, 1949, issue.

Regarding standardisation of the Australian railway gauges, negotiations were continued between the State and

Commonwealth Governments in Canberra in August, 1948. A committee was appointed to prepare a plan of standardisation and estimates for provision of a modernised railway system for the current and future needs of the State; its report was submitted to the Prime Minister in March, 1949, and in May he asked the State Government for its views, as the report was factual only. It was proposed that comment be held over until the three Commissioners being appointed under the amending Railways Act had studied the situation, but as the Assistant Commissioner, Engineering, was not due to arrive until September, the Railways Commissioner reported in June that rehabilitation was so urgent that in no circumstances should a decision be delayed longer than three months. Negotiations on the Ministerial level have continued since, and a final decision is looked for in the near future.

Aesthetics in French Railway Construction

IN a survey, published in our French contemporary, *Travaux*, of engineering works and buildings recently erected by the French National Railways, Monsieur R. Levi, Chief Civil Engineer, S.N.C.F., stresses the great influence which aesthetic considerations have been allowed to exert, leading to close co-operation of civil engineer and architect. Far from "uglifying" the landscape French railway engineers are making a determined effort to harmonise railway works with the surroundings.

A case in point is the design of the many new bridges which have had to be rebuilt since the war. The age of stone construction of a century ago is exemplified by many arched masonry viaducts for instance, at the Boulevard Exelmans in Paris. The many lattice girder viaducts of the Paris Métro, built 50 years ago, are representative of the "iron age." The fine viaduct of Colombes, built in 1936, is typical of reinforced concrete construction and at the same time a good example of collaboration between engineer and architect.

Among the great new bridges constructed after the war, the viaducts at Nogent, Longerey, Chasse, and others are good examples of beautiful engineering structures which enhance rather than destroy the amenities of their surroundings. This applies to concrete as well as steel bridges of all types. The same can be said of the many new stations which have been built. Here the S.N.C.F. endeavours to combine functional layout with an architectural style in keeping with local conditions. Even though they may have many features in common, stations in industrial suburbs must differ in appearance from those in a residential area or a health resort. In many instances, there has been co-operation with the architects of the local authorities to determine the most suitable style of the station building.

In a different category are the utility buildings of the railways situated along the lines, and often in the outskirts of the towns. Goods sheds, engine sheds, workshops, signal cabins, substations, and so on, are also within sight of passengers and others, and should preserve an attractive appearance. It does not necessarily cost more money to achieve this. Among the examples quoted by the author in this category are the substation buildings along the Paris-Lyons line which are built to different standard designs in keeping with the architecture of the provinces.

Finally, there is the important problem of designing, or re-designing, the appearance of railway sections passing through urban areas. This problem is twofold. The dreary sight of the suburban backyards may be just as offensive to the eye of the railway passenger, as the domination of the urban skyline by the horizontal of a railway embankment to the eye of the onlooker. It is admittedly difficult to find general remedies, but when opportunity arises, the railway engineer should keep this important consideration in mind. Recent examples of such a deliberate policy are the new flyover at Dijon, where a slender structure of reinforced concrete has been adopted instead of a massive embankment, and a number of new retaining walls, as in the Paris and Lyons areas, where architectural appearance has been specially considered.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Liverpool Street Station

May 31

SIR,—Both writers of letters in your issues of May 5 and 19 on the problem of easy transit between platforms 9 and 10 at Liverpool Street, and indeed yourself also in your footnotes, appear to have overlooked the fact that it is not necessary to use either the bridge or the Central Line subway.

What is the objection to walking round behind the buffer stops, passing the main line cloakroom and the eastern entrance to the Metropolitan station, opposite which is a notice with arrows indicating the way to the various main line platforms? This route is short and on the level all the way, much easier in fact than the long and obscure journey *via* subway that Mr. Burrell recommends to those with heavy luggage.

Yours faithfully,
C. M. HOUGHTON

Beaufort House, London, E.1

Last "Loch" Class Locomotive Withdrawn

June 8

SIR,—The paragraph in your May 26 issue is rather confused in certain respects, and I should like to make a few corrections. It would have been more apt to state that at the time of building, with the probable exception of Mr. William Adams's excellent "T3" class 4-4-0 of the London & South Western, the "Lochs" were the most powerful passenger engines in the country.

The "Lochs" originally had Smith (not Schmidt) piston valves, and were the first locomotives in Scotland to be so fitted; the piston valves were replaced by Richardson (not Allan) balance slide valves. Not all were rebuilt with Caledonian pattern boilers, and several when withdrawn had boilers of the original design.

Yours faithfully,
MONTAGUE SMITH, JUN.

61, Rupert Street, Glasgow, C.4

[The paragraph was based on an official press release by the Scottish Region.—Ed., R.G.]

Locomotive Liveries

May 22

SIR,—I was interested to read Mr. Dalton's letter of April 27, as I also have been very disappointed with the livery policy adopted by the Railway Executive. Certain liveries suit certain classes only, therefore I think it a bad policy that only four different liveries should have been adopted. The lined-out livery suits the Class "5" and Great Eastern "Clauds," but certainly not either the "V2" or "B1" engines, for example.

The new green is much too dark and bears too strong a resemblance to khaki; it completely lacks colour and suits only Western Region engines with polished brass work. Could L.N.E.R. green be substituted for some of the classes in olive green? If anybody is not in agreement with me on this point, I suggest he takes a look at "D16/3" 62618 which is allocated to Cambridge. This engine has recently been painted in L.N.E.R. green as a spare "Royal" engine. Could the "B1" return to L.N.E.R. green? After all, this class of engine is responsible for working the following named trains: "Master Cutler," "South Yorkshireman," "Norfolkman," "East Anglian," "Fenman," and many other expresses. Since this class went into lined black it has never received the same attention from shed staffs.

Is the "A3" more worthy for blue livery than the rebuilt "Royal Scot"? From personal experience, I think not. Many of the "A3's" are now feeling their age and are no longer up to taking the fastest and heaviest trains; they are consequently being used much more on parcels and semi-fast passenger trains and also Nos. 1, 2, and 3

freight trains. On the other hand, the rebuilt "Royal Scot" is a comparatively new design which both in the trials and since has proved itself a capable express engine.

I suggest that the Railway Executive in future should consider each individual class on its own merits.

Yours faithfully,
H. N. A. SHELTON

Belhaven Hill, Dunbar

Summer Train Services

May 20

SIR,—It seems to me that the curious arrival times of many express trains, pointed out by Mr. W. Robertson in your May 19 issue, are due not to a "puckish sense of humour," but rather the opposite, a complete lack of originality, and the almost dogmatic standardisation of running times. It is evident from the summer timetables that, in these days of "recovery time," train diagrams are not infallible. For instance, two (or three on Mondays and Fridays) of the Cambridge buffet expresses are due into Kings Cross only five min. behind long-distance expresses, although they use the same tracks from the dead start at Hitchin and have an extra stop at Welwyn Garden City. I deduce that either the recovery time is quite unnecessary, or that the Cambridge trains are to be almost invariably delayed at Hitchin (or, possibly, that the main-line trains run so late that they follow the Cambridge trains). To achieve even this, the two 80-min. trains are decelerated to 82 and 85 min. Short-distance expresses such as these should precede long-distance trains as far as possible.

I certainly agree that some trains are badly overtaken; to take a few at random, the 8.20 from Carlisle and the 10.50 from Windermere north of Crewe (both are 35 min. slower than in 1914); the 11.55 a.m. Manchester to Bristol (85 min. slower); and most of the cross-country "expresses" in East Anglia, timed at 25-30 m.p.h.—the 5.25 from Colchester averages 19.1 m.p.h. from Ely to Peterborough! These trains have remained little altered since the war, and long waits at stations are chiefly responsible; or, rather, a long overdue timetable revision.

Yours faithfully,
P. BUTTERFIELD

89, Tenison Road, Cambridge

June 13

SIR,—The recent correspondence in your columns criticising the summer timetables and their publicity is justified.

If the whole of the London Midland Region timetable were as well printed as the index and the Manchester-Altrincham service (six pages without a single footnote!), it would be a joy to use, but it is not. Most of the former Midland routes are well reproduced, but other tables, such as 127, 135, and 194, are very faint. Where two sorts of type are used in the same column, it would be an advantage if the heavier type were used for the same train throughout, with connecting services shown in a lighter type.

I find too much variety of presentation in the L.M.R. timetable, which might lead to confusion. Some Sunday services have thick black lines between the columns; some p.m. times have a thin line between hours and minutes. Certain Sunday tables have both these characteristics; others have one or neither. Another disadvantage, shared with the North Eastern and Scottish Region timetables, occurs in those tables printed across the page, for notes in the train columns appear upside down when the book is first opened. This means turning the book through 180 deg. when referring to two connecting services printed in different ways (e.g., 84 and 89).

In the preliminary announcement of the summer services there was a promise that some Manchester Central trains would call at Cheadle Heath, Didsbury, and Stockport. A close examination reveals that there are no additional stops at these places by Manchester Central trains.

Page 483 advertises runabout holiday tickets, one avail-

able to Llanberis. This station does not appear in the index, but page 227 announces "Caernarvon and Llanberis. Passenger train service suspended. Crossville Motor Services are operated." Which statement am I to believe? Alternatively, are these tickets available by bus? I doubt it.

The timetables that are ordered from the Passenger Agent of British Railways in London are delivered by the Post Office. I suggest that the office expenses of British Railways would be reduced by using their own transport and sending their publications "O.C.S."

Let it be thought that I have an eye only for the shortcomings of timetables, let me commend the two new Sunday trains between Manchester London Road and Buxton which run at convenient times, and were well patronised on their first trips on June 11, as they deserve.

Yours faithfully,

WILLIAM J. SKILLERN

15, Hollymount Road, Stockport

Railway Efficiency

June 7

SIR,—Referring to Mr. Frederick Smith's letter in *The Railway Gazette* of June 2, Mr. Smith does himself less than justice, as 1,053 British standard tons equals only 1,280 American short tons, not 1,400 as he quotes.

The writer, in his more active railway days, also suffered much from the misinterpretation of operating statistics. In practically every case the trouble was traceable to one of two causes: (a) honest ignorance, on the part of the critic, of the processes and principles by which crude figures are converted into useful statistics; and (b) the *not* so honest inclination to handpick those which could be manipulated to "prove" or support a case.

In this connection it might be well worth while in the interests of economy, to enquire into the cost of recording, compiling, analysing, and summarising the mass of figures and information from which the published statistical returns are prepared, and to pose continually the test question:—"Is this information really necessary to the efficient working of the railway machine?"

In his own experience the writer has often found items permanently recorded year after year, because once a question was asked which required much research into past history to answer, so thereafter records were maintained as a matter of routine, though the same question was never asked again. In all such cases it gave me the greatest satisfaction to issue countermanding instructions.

Yours faithfully,

RICHARD THOMAS

56, Ovington Street, S.W.3

Echo-Sounding Apparatus

June 7

SIR,—I read the article appearing in *The Railway Gazette* of April 14 on the recent adoption by the Missouri Pacific Railroad of supersonic sounding for river investigation work with particular interest as we have been using this method on this railway for the last 15 years. It is encouraging to learn that in one detail at least we are so far ahead of our American contemporaries!

Echo-sounding apparatus was first used on the Eastern Bengal Railway in 1935 for taking cross-sections and carrying out bed contour surveys of the River Ganges in the vicinity of the Hardinge Bridge and its extensive training works. It was found to be such an improvement over the old-fashioned, slow, and relatively inaccurate methods of lead-sounding that it has now become the accepted practice for all work of this nature in the large alluvial rivers. The errors which occur in taking lead soundings in depths of 200 ft. with a current up to 12 ft. per sec. may well be imagined; in fact in high flood conditions in these large rivers accurate sounding in the deeper channels by lead-line is a practical impossibility.

The echo-sounding gear used on this railway is of the magneto-striction type. The apparatus is installed in a 40 ft. motor launch, the amplifier and recorder being fixed on a bulkhead and the oscillators carried in a streamlined

case outriggered from the side of the boat. Inboard mounting of the oscillators (as in the case of deep sea vessels) was tried but it was found that at high speeds a film of air under the hull caused "separation" and failure of the echo.

Apart from the survey of bed conditions in the vicinity of existing works, extensive use has been made of supersonic sounding in the site investigations for proposed new bridges. In 1946 I was in charge of the survey and investigations for a proposed bridge across the Brahmaputra River in Assam. At the bridge site the river is nearly two miles wide, with a maximum depth at high flood of 152 ft. and a recorded velocity of 9.6 ft. per sec. In addition to taking cross-sections and contour surveys of the bed, the echosounder was used for recording depths in connection with the periodic discharge observations which were carried out.

For the bed contour surveys a system of sextant graphs was used for locating the position of the survey launch and hence of the soundings. The angles subtended by fixed shore-markers were read on two sextants simultaneously and these formed the co-ordinates from which the position of the launch could be fixed on the graph. Thus it was possible to plot the course of the boat as sounding proceeded and to locate the depths direct on the plan. Using this method it was not necessary for the launch to run on straight transits, a difficult matter in these strong currents, but could move freely about the river on any desired course, the distance between sounding lines being varied as required by bed conditions. Fix intervals could be varied by the speed of the launch, of course, and in the vicinity of deep scours, very close interval plotting could be obtained by running the launch against the current.

Using this method, a bed contour survey covering 12 square miles was completed in five days under high flood conditions. Such speed and accuracy is obtainable only by the use of supersonic sounding.

If any of your readers have similar problems to deal with, I shall be pleased to give them further details of the method briefly described herein.

Yours faithfully,

W. A. H. WATTS,
Chief Engineer

Eastern Bengal Railway, Chittagong, East Pakistan

Welded Bridges

May 31

SIR,—In the booklet issued to those who visited the recent exhibition of railway civil engineering at the Institution of Civil Engineers, in the notes on the present practice and future trends of bridge design, it is surprising to learn that by the application of welding there is a saving in weight and cost of welded girders as compared with riveted girders of some 20 per cent. Those of us who are constantly using welding as a medium for holding steel sections together in place of rivets, know that we can save weight, but unfortunately the cost of welded work is at a higher rate per ton than that for riveted work, and the net result is that there is very little or no saving in capital expenditure for welded work. It would be interesting to have details in support of the statement in the booklet.

If welded work does save 20 per cent. in weight and cost, and also as stated in the booklet, maintenance costs are reduced, one naturally asks why Regional railway engineers continue to use riveted work. As a contribution to reducing the large yearly deficit of our railways, and a deficit which has to be borne by the taxpayer, should riveted work be abandoned entirely?

Perhaps a point of view may be advanced by the railway engineers that there is not sufficient information available on the behaviour of welds under moving loads where reversal of stresses are induced. If our railway engineers have been investigating the application of welding for the past 20 years, is it not time that they have discovered something conclusive about it like other industries which now generally use welded structures designed for heavy duties comparable with those met in railway engineering?

Yours faithfully,

W. T. WILKS

57, The Gardens, Watford

THE SCRAP HEAP

White Mice of Maintenon

Two wagons of white mice, with more on the way, are worrying the stationmaster at Maintenon, near Paris. Being a tender-hearted man, he has ordered them to be fed with bundles of hay.

But it can't go on. What do people think he is? Yesterday the mice belonged to somebody, but now the owners, Laboratory Animals Limited, are under arrest.

It started with an advertising campaign. All people had to do was to send £3 10s., and by return they would get ten white mice, five male, five female, and a signed guarantee that the firm would buy the offspring.

But soon, in the course of nature, the apprentice-breeders discovered they got only ½d. for a male mouse, ¼d. for a female. Many breeders persisted in dispatches, however, in the hope prices would go up, and Laboratory Animals gathered in the rivers of white mice and continued reselling at 7s. each.

Now that the firm of Laboratory Animals no longer exists, the problem is: How to stop the flow of white mice? The stationmaster at Maintenon is looking very anxiously down the line. He can't bear white mice anyhow.—*From the "Daily Mail."*

British-built Veteran in Spain

Mr. P. C. Allen has sent us the accompanying photograph which he took recently in Barcelona. It depicts an old British locomotive which, on close inspection, was found to carry a maker's plate inscribed:—

KITSON, THOMPSON & HEWITSON
ENGINEERS
LEEDS
1858

Our correspondent wonders whether this is the oldest locomotive in service. He cannot say what the capacity of the engine was, as it seemed to be running about the yards light, but he noticed that it had a most powerful whistle!

Railway Service Praised

Mr. F. W. Abraham, Motive Power Superintendent of the London Midland Region of British Railways, has received a letter of praise from a regular traveller on the Euston-Birmingham service. "Without exception on the 2.15 p.m. train from Euston to Birmingham," states the writer, "I have been treated to such fine displays of keen running by engine crews that I feel moved to write to you on the subject."

"Week after week from checks by signals or from P.W.S., the attempt to get away again, and the effort involved to work the train up to its speed and time, has been a joy to behold. I still remember the pre-war 2 hr. 55 min. trains, and it is nice to cast one's mind back to such things, though even with the lower speeds of today I must give credit where it is due."

The Deepdene Dasher

The following verses, which relate to an incident on the old Melbourne Outer Circle Railway, have been sent to us by Mr. Alan A. Rowe, of Balwyn, Victoria, an entertainer on the Australian radio.

I'll tell you the tale of the Dasher,
A remarkable train, so they say,
And it pulled to and fro with its driver,
Ole Tom
'Tween Deepdene and Ashburton each day.

It were quite a congenial service,
And supposing you ran a bit late,
Well, so long as you let out a whistle
or waved
The Dasher would pull up and wait.

Or again, if a bit absent minded
And your lunch on the platform you'd
leave it,
The Dasher would grind back a couple
of yards
And let you hop out and retrieve it.

Well, one day at Deepdene the driver,
Ole Tom,

After dockin' his train in the yard,
Were talkin' of races, as railway blokes
do
While having 'is lunch with the guard.

'E'd just picked a cert for the Derby,
When 'is eyes from 'is 'eadpiece near
popped,
For on takin' a peep at 'is timepiece 'e
found
That 'is jolly old ticker 'ad stopped

Well, the guard who were quite a good
scholar,
Says, "Seven from fifteen leaves eight,
Letting "X" equal unknown quantity,
like,
We're just about ten minutes late."

Ole Tom makes a dive for the Dasher,
And opens the throttle up wide,
Determined to make up the time as
they'd lost.
And give folks a proper fast ride.

That trip, it will long be remembered,
'Twere a record as likely as not,
Why they averaged near ten miles per
'our 'arf way
And touched 25 in one spot.

Well, the Dasher were doing a steady
fifteen,
With many a jerk and a jolt,
When at Riversdale, out comes a porter,
ya see
And signalled the Dasher to halt.

Well, Tom pulls up the Dasher in clouds
of hot steam,
And says, "We're on time, you will
find."
And the porter says "Yes, but unfortu-
nately,
You've nowt but a tender behind."

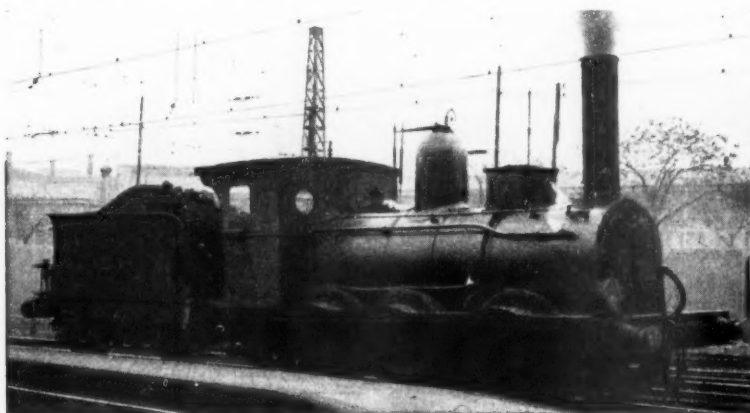
Well, at first poor Ole Tom thought the
porter
Were cracking a rather rude joke,
But, on looking around 'e very soon
found
The reason why porter thus spoke.

For in 'is great hurry to leave t'other
end
And make up lost time on the track,
'E'd left the best part of the train at
Deepdene
And 'e had to go all the way back.

Well, after Ole Tom had got back to
Deepdene,
'E were sort of upset, so to speak,
In fact, so much so, that I have heard
it said
'E were late for the rest of the week.

But laugh as we will at the Dasher,
There's one thing as we can't gainsay.
It were loved and respected by all, which
is something
We can't say of railways today.

And there's many a bloke in the
morning,
After missing his regular train,
Gives a sigh for the days of the Dasher.
When the railways was 'umble—but
sane.



Spanish National Railways 0-6-0 locomotive, built in Britain in 1858 and still at work in Barcelona

Photo]

[P. C. Allen

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

TASMANIA

Transport Policy

Both the Liberal and Labour Parties, who contested the recent election for the House of Assembly, adopted declared policies to safeguard the assets of the Government Railways and assure their future for some time. It will be recalled that the Report of the Joint Committee of both Houses of Parliament recommended in September last that the railways continue to cater for passenger and goods traffic on improved and faster timetables, using modern locomotives on order and carriage stock and vans to be rehabilitated along the lines suggested by the General Manager of Railways, Mr. C. E. Baird.

Subsidies to Goods Traffic

The Joint Committee also reviewed the subject of subsidies to goods traffic and reached the conclusion that there must be a further examination of existing freight rates. From the evidence submitted to them it was obvious, they stated, that the major losses on the railways are incurred because the Transport Commission carries almost every class of freight much below cost.

The practice of assisting industry by justified freight subsidies is not questioned, but it is considered in some quarters that the system of charging as railway losses subsidies given to industries is misleading and that these losses should be shown in the accounts of the Treasury as subsidies.

SOUTH AFRICA

Reef Area Electrification

Another step towards the complete electrification of the inner Reef area was taken on February 22 when the new signal cabin at Welverdiend for the reception and despatch of goods trains to and from the new change-over yard, was brought into operation. Welverdiend is the western terminus of the Witwatersrand electrified system and all trains to and from the south and west will change over at this point from steam to electric traction or *vice versa*. The construction of the new yard was begun in August, 1948, and the earthworks were completed by March, 1949, after which the laying of the track and the erection of the signal cabin were undertaken. The track work in the yard was completed in November, 1949.

The new yard contains eleven sets of track totalling in all nearly six miles in length, with 38 sets of points and crossings. Six roads will be used for changing over traction, one is the arrivals road, and the remaining four are for the handling of Welverdiend and branch line traffic. The new yard, which has cost £233,000, also includes a triangle for turning steam locomotives, an engine pit, and watering facilities not previously available at Welverdiend, and requiring the laying of six miles of

pipeline. In addition, housing has been provided for the staff.

The extension of the electrification system to Welverdiend necessitated the electrification of the lines between Nancefield, Midway and Bank stations, and between Randfontein and Welverdiend. Construction work on the conversion of these lines began in September, 1946, and was completed in 1949.

The electrification of these lines required the erection of sub-stations at Randfontein, Bank, Welverdiend, Westonaria, and Midway. The construction of these buildings is nearly completed and it is expected that the electrical equipment and plant will be installed and in full working order soon. All will then be in readiness for the introduction of complete electrification on the inner Reef area. The total cost of electrifying these sections is about £900,000.

UNITED STATES

Segregation in Dining Cars

The Supreme Court has decided that segregation of Negroes in dining cars is illegal and violates a section of the Interstate Commerce Act, which prohibits undue or unreasonable prejudice to any person using the railways. This ruling is the outcome of an appeal by an influential passenger who was refused a meal on the Southern Railway in 1942. The company later set aside a table or two for negroes in dining cars, but they were separated from the other tables by curtains or partitions.

CANADA

C.N.T. and Winnipeg Floods

During the recent serious floods in Winnipeg when the city lay partly under water and threatened with total inundation, the normal bicycle delivery service of Canadian National Telegraphs had to be augmented on many occasions by train and boat, as messengers helped handle the largest telegraph traffic into Winnipeg in C.N.T. history.

The telegraph staff had to rely greatly on telephones to cope with the delivery problem. They took over 90 per cent. of the telephones in the C.N.R. office building in the city and also used those of a nearby financial establishment at night after it had closed for business. Where telephone operations were interrupted by the flood waters, the messengers took over. To reach evacuees, the company broadcast the names and addresses of those for whom messages had been received.

A teletype loop was installed in the Red Cross branch at Winnipeg to move traffic to Toronto and Chicago, the Canadian and American Red Cross headquarters. The loop also handled urgent messages for flood victims who had entered the city from flooded areas and were awaiting further evacuation.

Water seepage threatened underground cables, and the company strung an over-

head 20-pair line between its city base and the C.N.R. station for emergency use. Another protective device was the stringing of three pair of overhead wires into C.B.C. studios to guard the radio transmission service. The Canadian Pacific Railway and the Canadian National Railway also strung 15 pairs of wire across the main thoroughfare to connect the offices of the two companies so that either could use the facilities of the other in case of a circuit failure.

ARGENTINA

Derailment of Electric Train

The recent derailment on a crossover of an electric train of the D.F. Sarmiento Railway, which had just left Plaza Miserere (low level) terminus, Buenos Aires, and was travelling slowly, caused extreme inconvenience to passengers on the suburban section for nearly 36 hr. The accident, which in itself was of little consequence, completely blocked Plaza Miserere Station, as the derailment took place in the tunnel, precluding the use of breakdown cranes. Repair gangs had to work with jacks in a restricted space. In the meantime, the electric suburban services had to use the Once main-line surface terminus, where some lines are equipped with third rail.

Bust of Sarmiento at Terminus

A bust of President Sarmiento, after whom the Domingo Faustino Sarmiento Railway is named, has been unveiled in the main hall of the Once terminal station of the railway. The cost has been met by contributions from the employees and workmen.

FRANCE

Paris Transport Board

A special commission entrusted with the task of submitting to the Government a scheme for the financial reorganisation of the Paris Transport Board (*Régie Autonome des Transports Parisiens*) was instituted by a decree issued early this month. Its terms of reference are to propose measures to maintain, within the limits fixed by the financial law governing the working of the R.A.T.P. services in 1950 or within the limits of the special development legislature, the financial assistance due to be paid to R.A.T.P. by the State with a view to ensuring the financial stability of the Board.

The commission is presided over by Monsieur Surleau, Conseiller d'Etat, and its members are Messieurs. Genet, Inspecteur Général des Ponts et Chaussées; Vacelet, Directeur Général Honoraire, Seine prefecture, and Hubac, Conseiller référendaire, Cour des Comptes. Monsieur Benoist d'Etiveaud, general secretary of the Regional Transport Office (*Office Régional des Transports*) has been appointed secretary of the commission.

Post-War Progress of the Bengal-Nagpur Railway

Improved punctuality and timings are significant features of the return to normal conditions

By P. C. Bahl, General Manager, Bengal-Nagpur Railway

NOW that conditions on the Bengal-Nagpur Railway are returning to normal after the stress and strain of the war years, special attention has been paid to the improvement of the scheduled timings of trains as well as to punctuality.

These improvements have been made possible mainly by encouraging the staff, improved methods of working, elimination of unnecessary delays and removal of speed restrictions. With the arrival of additional new and powerful locomotives the over-age and obsolete engines will be replaced, and further improvement in engine reliability, performance, and speed is expected.

Not only have running times been improved, but there has been a gratifying improvement in punctuality of all important long-distance trains which has already reached the pre-war standard, and effective steps have been taken to ensure that in the future running and punctuality are improved still further.

For many years, the railway, amongst very few, has intensively pooled locomotives over extended runs, with indiscriminate pooling of engine crews. This system of working is being maintained almost fully in spite of the extensive repairs necessary on over-age locomotives to keep them on this arduous service. Locomotive sheds are well equipped to undertake this work and results are shown in reduced engine failures and improved overall speeds.

"Belt System" Repairs

The Bengal-Nagpur is the only railway in India with a system of repairs known as the "Belt System." In pre-war years this enabled repairs being carried out to every locomotive within a period of 18-20 working days. In addition, piecework was also introduced in certain sections of the shops to provide a strong incentive to workers. The profits earned by the workers were based on rates fixed several years ago and very little had been done to revise the rates in spite of improvements in the equipment and planning repairs.

During the war, however, there was a slight setback due to difficulties in obtaining spare parts. Recently, with the introduction of higher wage-levels, the retention of old piecework rates could not be justified. Piecework was abolished and, though there was an immediate repercussion adversely affecting output, it has been possible to improve it considerably through concerted effort.

An interesting innovation has been the introduction of Class II sleeping cars of the European corridor type with the most up-to-date fittings. These are worked on long-distance mails and

express passenger trains and have proved popular.

Heavy renewals were not possible during war years because of shortage of material. During the last 18 months coaches have been rehabilitated as they passed through shops. The coaches leaving shops are to pre-war standard, complete with all internal fittings. Recently, considerable progress has been made towards improving the condition of Class III coaches by providing electric fans and better lavatory arrangements.

Apart from works necessary to meet operational requirements, works for providing additional amenities for the travelling public and housing schemes for the lower paid staff are being accelerated to improve the lot of the passengers and staff.

Among the amenities to be provided for the travelling public are new and large waiting halls and waiting rooms, covered platforms, additional bathing places and septic tank latrines on platforms, better drinking water facilities and electric fans in waiting halls.

An interesting item of bridgework has been the regirdering of the Langulia Bridge at Dusi on the section between Berhampore and Vizianagram. This bridge, which consists of seven 150 ft. and one 137 ft. spans, was originally constructed by the now defunct East Coast Railway. The girders were manufactured by P. & W. MacLellan Limited in 1891 and the bridge was opened for traffic in 1894. In time it was found that these girders were "under strength," and in recent years a speed restriction of 5 m.p.h. had to be imposed.

The obsolete girders have been replaced by girders of modern design by Bridge & Roof Company of Calcutta. They consist mostly of welded members, with only the field joints riveted. Although designed for much heavier loading, the new girders show a saving in steel of approximately 13½ tons a span on the original design. The renewal of the girders was completed during 1949 without interruption of traffic, and the resulting removal of the speed restriction has helped considerably in accelerating traffic on the East Coast route.

During the period 1945-1948 the railway carried out preliminary surveys covering 1,777 miles and reconnaissance surveys for 590 miles of broad gauge (5 ft. 6 in.) track in areas hitherto unserved by railways.

The Eastern Ghats form a natural barrier between the East Coast and Central India which at present is only crossed by one route on the railway—the Raipur-Vizianagram section constructed about 20 years ago.

Three new and separate routes have now been surveyed across these ghats. The country traversed is extremely difficult and in two of the routes 1 in 50 gradients are involved and in the third route 1 in 33 gradients with electric traction have been allowed for. To give an idea of the type of country traversed, it may be mentioned that in a 40-mile section of one of the 1 in 50 graded routes it will be necessary to construct 40 tunnels totalling 3.9 miles in length and 11 viaducts to carry the projected line across deep gorges and ravines. Due to the mountainous country a curvature of 8 deg. had to be adopted.

These surveys cover areas included in the Provinces of Bengal, Bihar, Orissa, Madras, and the Central Provinces, which are rich in mineral resources and agricultural possibilities. The construction of these lines, when undertaken, will considerably help Indian industrial and agricultural development.

Combating Ticketless Travel

To supplement the normal ticket-checking activities special squads carry out intensive checks on running trains as well as at stations. This work is done in close co-operation with the Provincial Government authorities, who have arranged for camp courts to be held by their magistrates so that offenders may be summarily dealt with. During the year ended March 31, 1949, persons detected travelling without tickets on the railway numbered 786,077, and the amount recovered from them for fares and penalties was Rs. 15,33,455. This showed an increase in detections and earnings of 97,362 and Rs. 2,28,770, respectively, on the previous year.

During the year 1948-49 gross earnings, excluding worked lines, amounted to Rs. 24.18 crores, the highest figure ever attained in the history of the railway, and an increase of Rs. 3.59 crores over the results of the previous year. The increase was made up of a 24 per cent. increase in goods earnings and 7.7 per cent. in coaching earnings.

Vizagapatam Harbour has been under the control of the Bengal-Nagpur Railway since April, 1946, and this arrangement has benefited both the railway and the port.

Of two reinforced concrete coaling berths arranged for, one is now nearly completed. Additional quay shed accommodation is being provided and more electric cargo handling cranes are on order. In connection with the important shipbuilding yard which has been established at this port, a new railway connection is being constructed between the shipyard and the main line, including a bridge consisting of thirty 20-ft. spans, which is now in hand.

Improved Fish Vans for British Railways

Design incorporating better insulation and steam heating

THE conveyance of fish by rail has been the subject of negotiation with representative bodies of the fishing industry for a number of years, and it has not always been easy to meet their requirements, since there has not always been unanimity of opinion in the trade as to what constitutes the best type of vehicle for this purpose. In 1929 a measure of agreement was reached, and the design of van which was the outcome of those deliberations has, with slight modification from time

a design was evolved which has resulted in the erection of 400 vans of the new design being undertaken at Darlington.

The wagons are fitted with vacuum brake and also a right-hand lever brake on both sides. Through steam pipes to preserve continuity of steam heating are fitted. The underframes are of welded construction and all the main members are made from standard rolled sections. Standard screw couplings have been fitted, as is the practice on all vacuum fitted stock. Because of the short

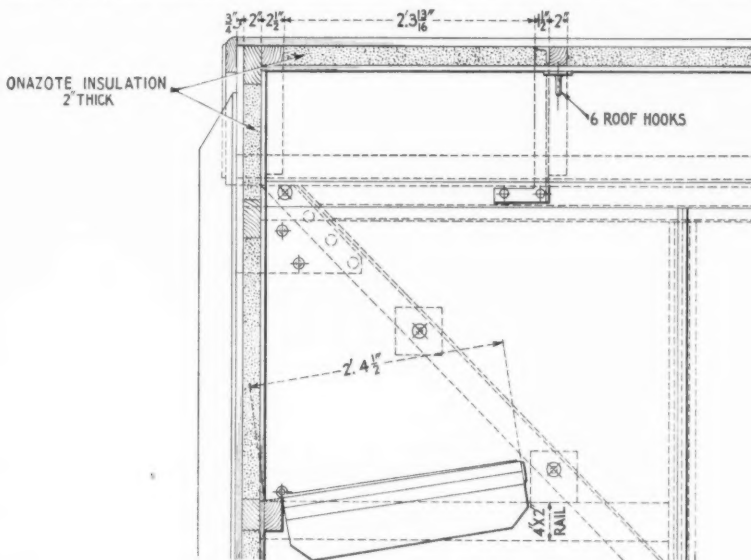
amount of overhang from the wheel centres to the headstocks, it was found impracticable to fit the usual stem type buffer, and self-contained buffers were used in their stead.

The construction of the bodies has something in common with the latest practice adopted for covered goods wagons in that the side quarters and end panels are of $\frac{1}{4}$ in. thick resin bonded plywood with roofs having outside sheeting of $\frac{7}{8}$ in. thick tongued and grooved boards. The whole of this structure is held together and braced by members made from standard rolled sections. For insulation, Onazote slabs 2 in. thick have been introduced at sides, ends, and roof. Tongued and grooved boards $\frac{1}{2}$ in. thick from the underdrawing for the roof.

Lining of Non-Absorbent Material

A feature strongly urged when the new design was put in hand was the provision of some form of lining for the sides and ends which would be non-absorbent and easy to keep clean. To meet this requirement the inside lining at these positions is composed of $\frac{1}{8}$ in. thick resin bonded plywood faced on one side with 16-gauge light alloy. The floors are of $1\frac{1}{2}$ in. tongued and grooved boards covered with suitable felt $\frac{1}{8}$ in. thick, over which asphalt has been laid to a thickness of $1\frac{1}{2}$ in. at the side and tapering to $\frac{1}{4}$ in. at the centre. This variation permits drainage. Two water-seal type drains are fitted to each van.

The most noticeable departure from previous practice has been the provision of almost air-tight inside sliding

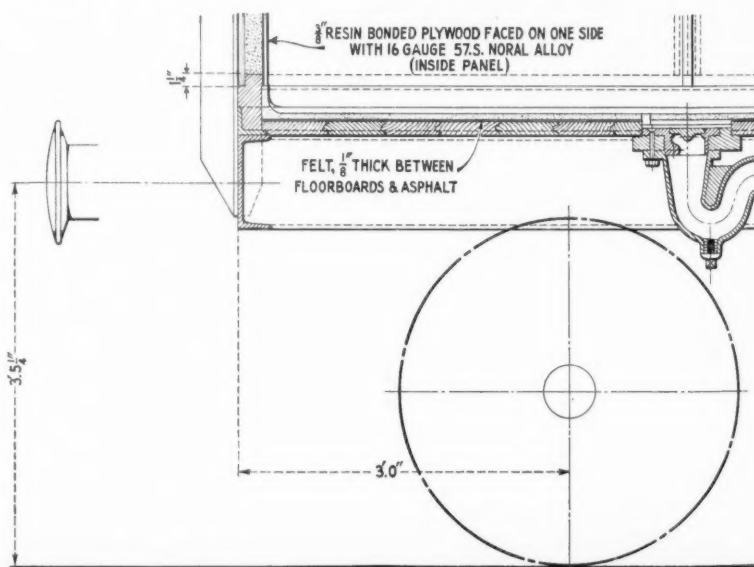


Sectional view showing the insulation of roof and end

to time, been the vehicle most generally used for that type of traffic.

During the ensuing years a stock of between 2,000 and 3,000 wagons has been built up, and a number of other wagons of similar design have been specifically reserved for the transport of fish. The successful carriage of fish demands that every use shall be made of the improved materials which become available. Although the vehicles mentioned had done good service, it was felt that there was room for improvement, and there is no doubt that, had the war not intervened, the problem of working out a new design would have been taken in hand in 1939 or 1940.

In 1945, the first steps were taken to try to overcome some of the disadvantages of the 1929 van, such as the provision of better insulation and a longer wheelbase. Though it was easy to lay down the various requirements, their translation into practical construction was made difficult by operational obstacles. After much deliberation by the departments concerned and the carrying out of numerous experiments,



View showing the floor insulation and drain

doors made in two portions. When the question first arose regarding the improved standard of insulation which would be required it was realised that the door would be the main problem. Hinged doors to close on to gaskets seemed the obvious solution except that there were operational difficulties which could not be overcome. At most fish docks it is the practice to stand trains of vans on adjacent roads and barrow the fish through one train into the other.

None of the roads had sufficient space between them to allow hinged doors to be opened and closed when two trains were marshalled side by side. Also, it was found that at most of the ports the dock edges were of such a height that they also prohibited the use of hinged doors. These conditions made sliding doors necessary. All the 1929 vans were fitted with the orthodox one-piece outside sliding doors, but a door of this type is not easy to make air-tight, and complaints had been received that they were heavy and difficult to operate from ballast level.

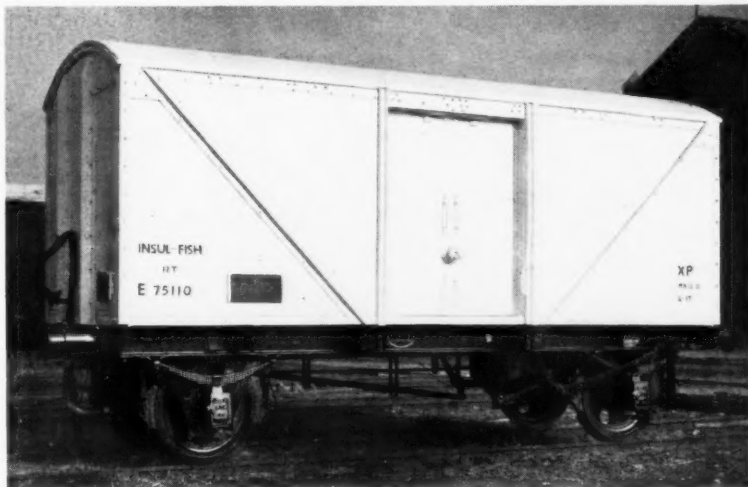
The doors being fitted on the present vans are the result of a number of experiments. They are of sandwich construction and the inner and outer sheets are of 12 S.W.G. thick light alloy with $1\frac{1}{2}$ in. thick Onazote between. An ingenious system of flexible gaskets has been evolved which ensures that the doors are air-tight when closed. They consist of suitable strips of Rubazote. Those at the back edges of the doors are fixed to fillets on the body side and form an air-tight joint when they come into contact with an angle piece fitted to the door. At the top an unequal L-shaped piece of Rubazote is secured to the cantrail and carries at its outer edge a metal bar which has a wedge fitted in such a position that it comes

into contact with a Tufnol cam just before the two halves of the door come together. The remaining movement is sufficient to cause the cam to lift the Rubazote strip and make it come into contact with fillets fitted on the face of the doors.

At the centre the gasket is formed

detrimental. Each door is suspended from two concave faced pulleys which run on a track formed by a piece of $1\frac{1}{2}$ in. outside dia. steel tube.

Noral alloy shields are provided so that if the load moves during transit it is not possible for the fish boxes to interfere with the operation of the



Fish van of improved design built at Darlington

by a metal tongue on one door which engages into a groove formed by two separate strips of Rubazote on the opposite door. The presence of a certain amount of water on the floor of the vans is unavoidable, and for this reason it was not considered expedient to fit any form of gaskets at the bottom of the door, but a tongue and groove form of guide has been provided and it is not anticipated that the amount of heat transfer will be sufficient to be

doors. Hooks have been fitted in the roof which will enable bags containing dry ice to be suspended and so provide refrigeration when necessary.

The main dimensions of these wagons are as follow:—

Wheelbase ...	15 ft. 0 in.
Length over headstocks ...	21 ft. 0 in.
Length over buffers ...	24 ft. 5 in.
Extreme height ...	12 ft. 0 in.
Height inside at centre ...	7 ft. 7½ in.
Extreme width ...	8 ft. 8 in.
Width inside ...	7 ft. 9½ in.
Capacity ...	1,163 cu. ft.
Tare ...	10 ton 18 cwt.

GREEK-JUGOSLAV RAILWAY LINK.—It is officially reported that the Greek-Jugoslav railway line has been connected across the border and the barbed wire barriers have been removed from that point. Trains from Paris and Athens by way of Belgrade will run again when agreement on technical matters has been reached.

NEW WAGONS-LITS.—The Cie. Internationale des Wagon-Lits has introduced on the Nord Express some welded steel sleeping cars having first, second, and third class berths. There are eleven sleeping compartments, of which the four of third class have three berths each, arranged like a couchette. These cars are now running between Paris and Stockholm; they have a body length of 67 ft., a tare weight of 52 tonnes, S.K.F. roller-bearing axleboxes, welded steel underframe, and a steel body of welded and riveted construction.

BRITISH STANDARD FOR SAFETY GLOVES.—A new British Standard (B.S.1651:1950) deals with safety gloves, mittens, and handguards for protection in all industries. This standard is based on practical trials lasting several years and is designed to canalise the demand for safety gloves from more than 200 types now commonly supplied. This should facilitate economic

production as well as the ordering and stocking of gloves. The gloves fall into five groups, namely, leather, plastics, rubber, felt, and cotton. Recommendations on the storage and preservation of rubber gloves are included. Copies may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, price 4s.

ROAD HAULAGE ASSOCIATION CONFERENCE.—The Road Haulage Association will hold its second annual conference this year at Scarborough, from September 19 to 22. The business to be transacted will cover all aspects of road haulage, and will include a paper on legal questions in connection with the transport of goods by road, as affected by the Transport Act, 1947. Facilities for the entertainment of members and their guests are being arranged.

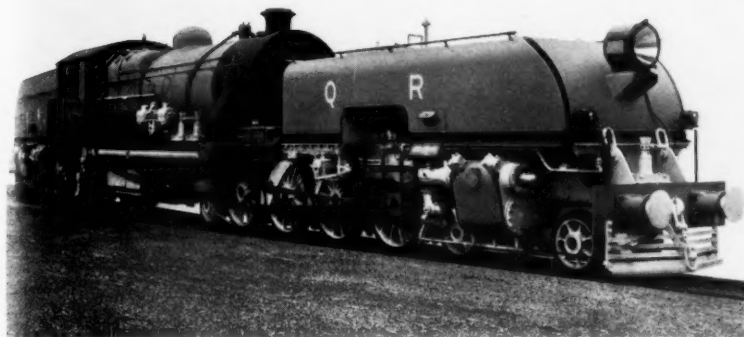
BRITISH RAILWAYS TO BUILD MORE TRACK-LAYING UNITS.—Six more track-laying units are to be built by British Railways for relaying lengths of line with pre-fabricated track. Five of the units will be built at Swindon, and when completed will be used in the Western, North Eastern, and Scottish Regions. They will be operated by hydraulic power. The remaining unit will be built by, and used on the Southern Re-

gion, and it will be operated by compressed air, as in the case of the previous three units, the provision of which was announced in January last. The new units will be equipped with cantilever lifting arms which can swing out over an adjoining track, lift out a 60-ft. length of track weighing $4\frac{1}{2}$ tons, and replace it with a new section of pre-fabricated track. This complete operation takes only about 4 min. The units can be used in tunnels and other confined spaces.

WIDTH OF PUBLIC SERVICE VEHICLES.—The use of 8-ft. wide buses and coaches, hitherto restricted to roads specially approved for the purpose, is now permitted generally as from June 19. The normal procedure for the approval of routes will now be followed in respect of 8-ft. vehicles as well as for those up to 7 ft. 6 in. wide. Because of the traffic conditions in London special arrangements are under consideration for the Metropolitan Police District and the City of London. The Minister of Transport has made the Motor Vehicles (Construction and Use) (Amendment) (No. 2) Regulations, 1950, cancelling the restriction by revoking Regulation 66A of the principal Construction and Use Regulations, 1947. Copies may be obtained from H.M. Stationery Office.

Beyer-Garratt Locomotives for Queensland

A powerful general utility articulated locomotive on a light axleload is part of the extensive rehabilitation programme being undertaken by this railway



THE tempo of general development in Australia has quickened during the past ten years. This may be occasioned partly by the incidence of war and its consequent disturbance of normal routine, but it is also due to the changing world conditions and the realisation of the high importance of Australia's part in the British Commonwealth and the world. As a result of the general expansion in industry and social development, all the States in Australia have given active consideration to the improvement of their transport and very extensive programmes of modernisation are in progress.

Queensland, in particular, has formulated a programme of expansion for the next twenty-five years based on the widening market for her agricultural, pastoral and forestry products, well supported by mining, with new coal developments, and general manufacturing.

An important part of this programme covers renewals and general improvements to track, new locomotives and rolling stock (some 40 per cent. of the existing locomotives are 30 to 40 years old and maintenance is in arrears) and considerable rebuilding of the extensive 3-ft. 6-in. gauge railway and the electrification of its suburban system. With 6,567 miles of line, the system ranks second to the largest 3-ft. 6-in. gauge system in the world, South Africa, but it is still restricted in the tonnages hauled on the many lines going northwards through the coastal foothills because of the many wooden bridges which are capable of supporting only a low axleload.

It was, therefore, important that locomotive power in particular and rolling stock should be obtained as early as possible to assist in the handling of increased coal production and contribute in the handling of such crops as sorghum for the increase in livestock.

Orders were therefore placed in this country for locomotives, in addition to others of existing types in Australia, these including thirty of a new and powerful design of Beyer-Garratt locomotive from Beyer, Peacock & Co.

Ltd., Manchester, for lines with severe limiting weight restriction. In view of the great urgency the later addition to this order, was sublet by Beyer, Peacock & Co. Ltd. to its associate licensee, Société Franco-Belge de Matériel de Chemins de fer, of Raismes, France, to enable continuity in delivery.

These articulated engines, built to a coupled axleload of 9.64 tons, though primarily intended for the haulage of the "Sunshine" express on the 1,043

miles to Cairns, will also be suitable for heavy freight working over most of the line. These locomotives are of the latest design of the Beyer-Garratt locomotive, which embodies the experience and improvements in both general and detail design applied by this nearly century old British locomotive manufacturer and which supplied the first Garratt engine to the Tasmanian Government Railways in 1908.

General Design

The 4-8-2 + 2-8-4 wheel arrangement was chosen so as to obtain a maximum tractive effort on the very limited axleload provided and still maintain a flexible free-running locomotive capable of negotiating the five-chain curves which have $\frac{1}{2}$ -in. gauge widening. The 4-ft. 3-in. dia. wheel was used to ensure suitability for general purpose work and was the largest possible within the prescribed loading. Nevertheless, it should be capable of hauling the "Sunshine" express running between Brisbane and Cairns (1,043 miles).

Climatic conditions have also influenced the design in that special efforts have been made to provide a cab well ventilated with a sun-proof roof, as the



Map of the Queensland Railways

locomotives travel far into the tropics, and yet capable of closure to give full protection in bad weather.

The choice of these locomotives has an additional advantage inasmuch as they will be capable of hauling the same trains as other locomotives with a heavier axleload on the heavy rail, and will be able to continue over other sections of line of lighter rail. Approximately they represent a 50 per cent. increase over the present most powerful existing engines. The locomotives have been designed by Beyer, Peacock & Co. Ltd. to a general specification and certain standards as specified by the Chief Mechanical Engineer, Mr. Vincent Hall. The progress of the contract has been controlled by the Agent General for Queensland in London.

The Boiler

The maximum possible boiler capacity has been provided within the axleload stipulated, with a straightforward

and one Everlasting blow-off cock is fitted for operation from the cab. A silencer and deflector is arranged at the end of the blow down pipe which amongst other things prevents damage to ballast and track.

A cast-iron Zara regulator with pilot valve is located in the dome and is operated by push-and-pull gear with vertical handle. A particular feature is the pressure enclosed crank and stuffing box at the end of the regulator operating rod. Two Davies & Metcalfe Nathan live steam injectors, non-lifting, have their clack boxes arranged on the top of the boiler in the front course. The main steam turret is located outside the cab and supplies steam to all auxiliaries. Steam to the injectors is controlled through quick-acting steam valves on the side of the firebox.

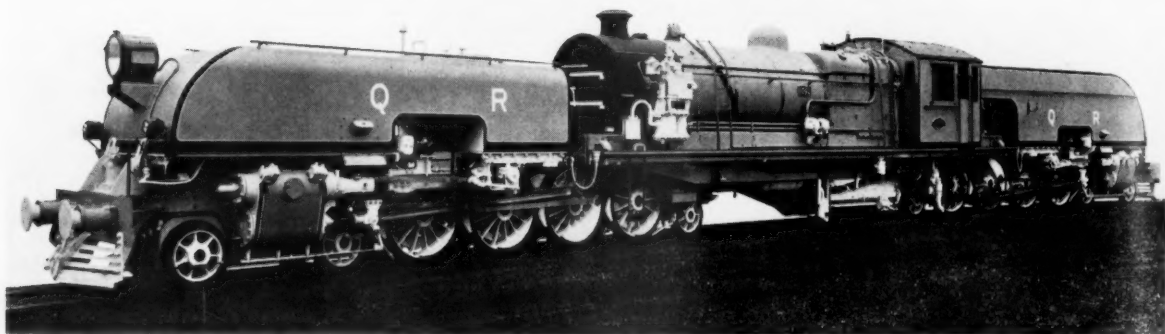
The whole work on the boiler, the tests of which are carried out at the maker's works, conforms to the requirements of the Australia Boiler Code,

pan below the foundation ring, and is without the normal air doors; it is provided, however, with bottom-empting doors discharging between the rails and operated by a compressed air cylinder. A powerful ashpan drench facilitates cleaning.

Engine Units

The engine and boiler unit frames are of steel plates to B.S.S. 24, Part 6 No. 17, and very generous proportions have been given to the frame stretchers and stays to ensure the most rigid arrangement. The pivot centres in particular are incorporated in the latest design of steel casting to make them an integral part of the frame structure. Following the successful experience obtained, these pivots are of the Beyer Peacock patent self-adjusting type with spring-loaded side bearers, the pivots being lubricated from the mechanical lubricators.

The cast-iron cylinders are in the form



View of the left side showing position of the Westinghouse compressor and an unusual feature on the 3-ft. 6-in. gauge of side buffers

design of Belpaire firebox including arch tubes. The inner firebox is of steel from Colville's firebox quality plates and is of welded construction. Both the 32 5½-in. dia. 8 s.w.g. flue tubes and the 146 1½-in. dia. 11 s.w.g. small tubes are expanded into the tube plates at both ends but beaded over at the firebox end only.

The crown has three rows of flexible roof stays at the front end and flexible water space stays are included in the breaking zones on the firebox side and back plate; the rigid water space stays are of Longstrand steel with telltale hole. The foundation ring is of mild steel, fabricated by electric arc welding and is fully machined on the surfaces in contact with the boiler and firebox plates.

The superheater is of the latest improved type with ball-joint elements with solid-drawn-steel tubes with integrally-forged return bends. The equipment complete with the anti-vacuum valve fitted to the header is supplied by the Superheater Co. Ltd. Particular attention has been given to providing adequate washout facilities

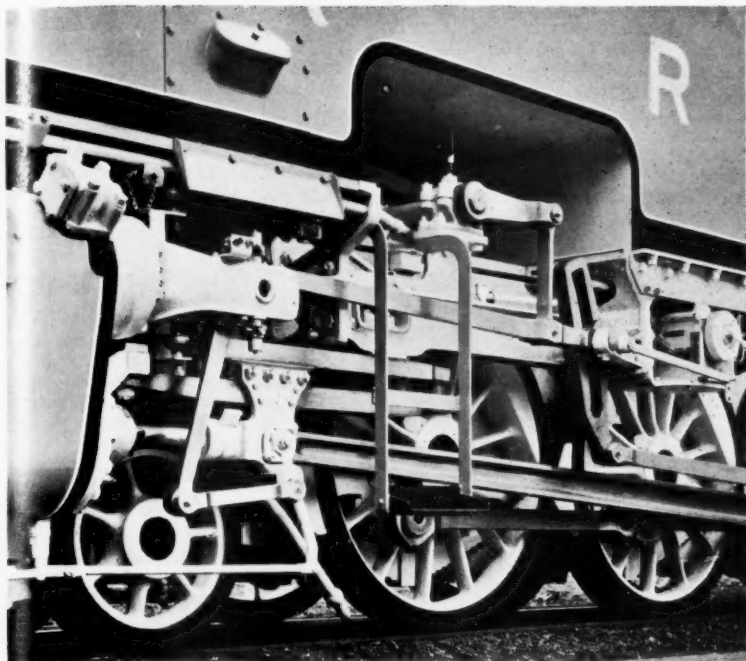
although the materials are in accordance with British Standard Specifications. The interior surfaces of the boiler up to the water line are painted with Apexior compound.

The smokebox wrapper plate is in one piece, with the dome head type fastening to the boiler barrel and, although with a large type of smokebox door fastened with a dart, the front plate is bolted on. The smokebox is supported from the boiler frame by a cast-steel support on each side. The interior of the box is arranged as self-cleaning with a mesh screen spark arrestor similar to the usual American type front end. The cast-iron blast pipe is fitted with simple perforated pipe blower ring and four Goodfellow tips.

The Waugh firegrate conforms to Queensland practice as being suitable for the local coal, which has up to 20 per cent. ash content and a varying calorific value from 11,000-13,000 B.Th.U.s. The bars are of the rocking type, hand operated in four sections. Every effort has been made in the design of the ashpan to make it entirely self-cleaning as it has fixed air spaces around the top of the

of separate castings bolted to the frame with recessed piston heads in cast iron, fitted with three narrow rings. Attention has been given to the easy flow of steam by straight steam ports and exhaust passages of ample proportions. The 8 in. dia. piston valves are of the plug type with four narrow rings, and Hendrie type bye-pass valves are mounted on the cylinders and anti-vacuum valves are mounted on the steam chest. The cylinder covers are fitted with a normal type of pressure release valve. Piston rods are equipped with a floating type of metallic packing supplied by the U.S. Metallic Packing Co. Ltd. in accordance with the railways' standard and the cylinder drain cocks are mechanically operated from the cab.

From the illustrations it will be seen that advantage has been taken in providing a clean and efficient arrangement of the Walschaerts valve gear. The centre line of the cylinders, bottom pin of the reversing link and the centre line of the coupled wheels are in line. This gear is arranged for a valve travel of 5½ in. with a cut-off of 75 per cent. in



The Walschaerts valve gear

full gear. The dieblock is in the direct half of the reversing link for forward running on both units. The latest design of Hadfield power-reverse gear is fitted. This gear provides a positive selection of cut-off and recent applications have been outstandingly successful. The underslung crosshead of the Laird type has been used with ample slide bar surfaces, this arrangement having proved so successful, particularly under the arduous conditions with articulated locomotives with small coupled wheels. The crosshead slippers are completely white metalled in accordance with the railways' practice.

The connecting rods are of fluted section from forged "C" steel with plain bronze bush in the small end. The coupling rods are of rectangular section with solid ends all fitted as the connecting rod big end with fixed steel bushes and floating bronze bushes for hard grease lubrication.

The cast-steel coupled horn blocks are of the horseshoe type with renewable bronze liners and wedge adjustment. The coupled axleboxes are of cast steel with inserted gunmetal bearings with white metal linings. The face liners are also white metalled all over, including the face of the keep.

The main bearing springs located under the axleboxes are laminated with fixed spring links and compensated. The compensation is arranged in two groups on each side, namely, the outer and intermediate coupled wheels and the driving, inner coupled and inner truck.

All wheel centres are of cast steel, complete with balance weights which were cast overweight and machined to suit, lead filling being used for the driving wheels only. All wheels are indi-

vidually checked and corrected for static balance.

The steel tyres secured by the Gibson ring fastening have an unusual profile being parallel on the tread to conform to Queensland practice. The outer coupled wheels of each engine unit are fitted with flangeless tyres. Approximately 33 per cent. of the reciprocating weight is balanced. All coupled wheels

are fitted with cast-iron hub liners in one piece held in place by gunmetal set-screws.

Ball joints and expansion joints are in accordance with Beyer Peacock's latest practice. Particular attention may be drawn to the expansion joints which are fitted with self-lubricating moulded packing, working on a stainless-steel ground sleeve welded to the end of the pipe.

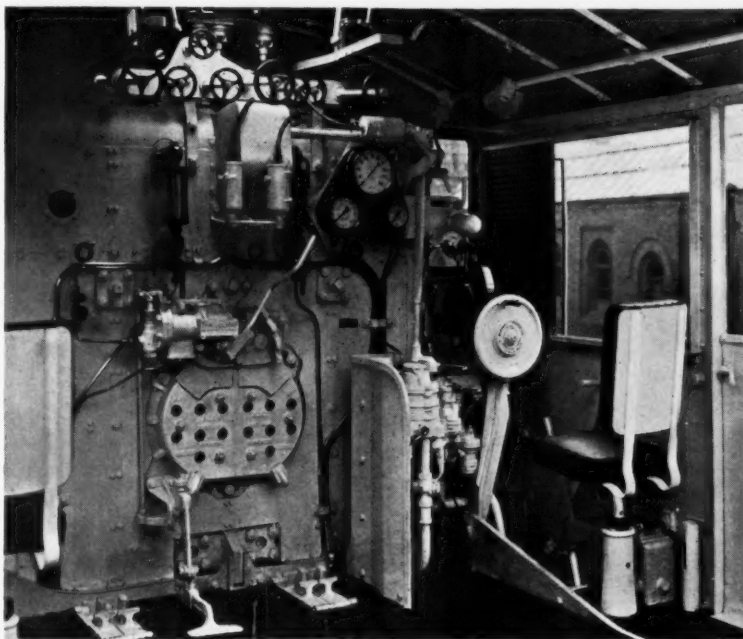
An unusual feature of these engines is that they are provided with side buffers and plain hook and screw coupling in the centre, operating on a long drawbar with Spencer Moulton rubber draw-gear springs. The design has been made with a view to the possible conversion later to the central coupler.

Tanks and bunker are of welded construction with riveted baffle plates. A vertical pipe with spaced perforations in position behind the cab gives visual indication of the water level.

Bogies and Brake Gear

The outer bogies are of the centre bearing type with laminated spring side control. The frame plates are joined by a cast-steel frame stay with gunmetal slides. Independent laminated springs are fitted over the axleboxes. Both the outer bogies and inner truck have Timken roller bearing axleboxes. These are of the Cannon type for the outer bogies but in the case of the inner trucks, the latest arrangement of transverse steel casting accommodates boxes and allows for radial and out of line movement. These inner trucks are of the radial arm type with helical spring side control.

Westinghouse air brake of the Australian pattern A6ET acts on all the coupled wheels of the engine in addition to the train. A 7 in.-80 type cross



Interior of the cab, driver's side

compound compressor of Australian manufacture is located on the left-hand side of the smokebox, a particular feature being the air-operated automatic lubricator, type FT., positioned on the top of the compressor. The handbrake operates on the hind unit only, and considerable improvement has been made in operating gear. A large hand brake wheel is fixed to the back of the cab.

Cab and Mountings

More than the usual attention has been given to the cab layout to ensure the comfort and convenience of the engine crew. The floor is almost devoid of obstruction and the fireman has complete freedom for his movements. Armchair comfort is provided for both driver and fireman by Dunlopillo adjustable seats with spring back rests and foot rests. These seats, mounted on vertical pillars, are adjustable in three directions and should meet every stature and convenience. The control for the power reverse gear is in a handy position and easy observation of the cut-off has been ensured by arranging the sector plate vertically. A clear and completely unobstructed view is given to the driver. The Teloc speed indicator is fixed on the cab front below the window.

The speed indicator and mileage counter is operated from the inner coupling rod, a telescopic driving rod being introduced between the cab gear box and the lower driving gear box to allow for movement between the unit and the boiler frame.

As these engines have to operate under a wide range of weather conditions, special attention has been given to venti-

lation with openings from all angles and a double roof, wood lined, for hot weather. The cab can be well closed and give full protection during rain. The cab side-window louvres can be pushed back for full opening and a vertical glass windscreen gives forward protection. Specially-designed ventilated lockers are incorporated in the cab for enginemens' food boxes. The usual brake and pressure gauge are in good view of the driver and conventional water gauges are fitted.

An Ajax butterfly type air-operated fire-door is included with adjustable foot control. In the illustration of the cab, the stubs for rocking grate operation can be seen, with hinged lock plates.

Pyle National 32-volt electric-lighting system is used; current is provided by the turbo-generator on the left side of the platform. The usual headlights at each end of the engine, cab and gauge lights are included, and also a special fitting for the illumination of the reversing gear sector, but, in addition, two side classification lights are arranged on the tanks at each end of the engine and also fixed motion lamps under the tanks on each side of the units with insertion points for handlamp.

Four Silvertown 8-feed mechanical lubricators are placed on the units with a very convenient close drive from the reversing link trunnion. Two lubricators provide feeds to each of the coupled axleboxes which are also provided with Armstrong oilers. The other two lubricators provide feeds to the cylinder barrels, double output feeds to the steam chests, two feeds to each of the pivot centres and two feeds to each steam ball joint. The steam pipe and

cylinder feeds are equipped with diaphragm type check valves and atomiser. Gresham & Craven air-sanding apparatus is fitted and is arranged to feed the front and rear of each group of coupled wheels. Two Ross Pop safety valves are set for 200 lb./sq. in. and with the steam turret outside the cab, a very clean arrangement of controls is possible.

The locomotives are provided with a complete set of tools and firing irons and four 20-ton lifting and traversing screw jacks. On arrival in Queensland, they will be finished in Midland red and will bear the numbers 1001-1030.

These Beyer-Garratt locomotives conform to the now conventional design as established by the makers, all latest developments and improvements derived from experience in the operation of this type on many gauges in many lands having been embodied. The design also conforms to the conditions and requirements of the Queensland Government Railway and Australian regulations where necessary.

The leading dimensions are:—

Cylinders (4), dia. by stroke	13½ in. by 26 in.
Coupled wheels	4 ft. 3 in.
Wheelbase, rigid	9 ft. 5 in.
Axleload	9-64 tons
Adhesive weight	77-12 tons
Total weight (in working order)	136-75 tons
Boiler pressure	200 lb./sq. in.
Heating surface—	
Tubes, 32 flue 5½ in. o.d., 146 small	
1½ in. o.d.	1,490 sq. ft.
Firebox	178 sq. ft.
Total evaporative	1,668 sq. ft.
Superheater, 1½ in. o.d. tubes	453 sq. ft.
Total	2,121 sq. ft.
Grate area	39 sq. ft.
Tractive effort at 85 per cent. b.p.	32,770 lb.
Tractive effort at 75 per cent. b.p.	28,920 lb.
Coal capacity	6 tons
Water capacity	3,800 gal.

Main Line Working in Germany



2-8-2 locomotive on Cologne-Berlin Express at Hanover Main Station, German Federal Railways

Photo]

[G. J. Jefferson

RAILWAY NEWS SECTION

PERSONAL

ROAD HAULAGE EXECUTIVE APPOINTMENTS
The following staff changes are announced by the Road Haulage Executive:—

Mr. J. S. Nicholl, Chief Officer (Organisation), to be Chief Officer (Research and Charges), with responsibility for road/rail integration, charges schemes, licensing, and research.

Mr. J. B. Garrett, Divisional Manager, Eastern Division, to be Chief Officer (Organisation), with responsibility for planning and development, acquisition and valuations, projects, and permits.

Mr. D. H. Foulds, Manager (Parcels Services), South Eastern Division, to be Deputy Chief Traffic Officer (Commercial) in the department of the Chief Traffic Officer.

Mr. N. D. Fawcner, Deputy Chief Traffic Officer (Operations), to be Deputy Chief Traffic Officer (Parcels Operations).

Mr. S. F. Kneller, Deputy Chief Traffic Officer (Commercial Services), to be Deputy Chief Traffic Officer (General Haulage Operations).

Mr. C. N. Christensen, District Manager, Manchester District, to be Divisional Manager, Eastern Division.

Mr. R. W. Mitchell, Chief Assistant to the Manager (Parcels Service), South Eastern Division, to be Manager (Parcels Services), South Eastern Division.

Mr. W. A. Bridge, District Manager, Liverpool District, to be the officer responsible to the Divisional Manager, Special Traffics (Pickfords) Division, for the meat traffic interests of the Division.

Mr. T. G. Creighton, Director of Mechanical Engineering & Stores, Railway Division, Government of Pakistan, who recently was acting as Director-General of Railways, is on leave in Great Britain.

Mr. J. C. Atkinson has been appointed General Manager, Jamaica Government Railway, in succession to Mr. H. R. Fox, who has retired.

We regret to record the death of Mr. H. Stewart Coe, who retired from the position of Secretary of the Great Southern Railways at the beginning of 1942.

Mr. Robert Hunter, Goods Terminal Superintendent, Commercial Superintendent's Office, Euston, London Midland Region, has retired.

Mr. F. T. Gray, Assistant to Commercial Superintendent (Cartage & Terminals), North Eastern Region, has been appointed Assistant to Commercial Superintendent (Freight), North Eastern Region, York.

Mr. N. F. Cowie has been appointed Division Freight Agent, Winnipeg, and Mr. W. S. Gourley Division Freight Agent, Montreal, Canadian Pacific Railway.

Colonel José Roberto Zubieta, General Manager of the General Roca Railway, who has recently been appointed President of the newly-formed Directorate of the Argentine National Railways, was born in Villa María, in the Province of Córdoba, in 1904. After completing his secondary education he entered the Argentine National Military College as a cadet and completed the full course with distinction. Colonel Zubieta subsequently



Colonel José Zubieta
Appointed President of the Directorate,
Argentine National Railways

occupied a number of positions in the office of the President of the Republic. He was appointed General Manager of the General Roca Railway (former B.A.G.S.R.) in March, 1949. In December of that year he was appointed Acting General Manager of the D. F. Sarmiento Railway (late B.A.W.R.).

Mr. E. S. Chasseing, Sub-Manager, and Mr. A. Alvisio, Chief of Division in the Management, General Mitre Railway, have been transferred to the Argentine Ministry of Transport. In consequence, Mr. J. L. M. Ledesma, who was temporarily attached to the Management, has been appointed Assistant to the General Manager, General Mitre Railway, and Mr. Jaime Galimany has become Chief of Division.

Mr. Isodoro González has been appointed Chief of the Traffic Department, General Mitre Railway, in succession to Mr. F. Foyatier, who has retired.

Mr. Christopher Shawcross, K.C., Chairman of the all-party Parliamentary Committee for the Channel Tunnel, has been appointed a Director of the Channel Tunnel Company.

At the meeting of the Council of the Public Transport Association Incorporated held on June 8, Mr. Geo. F. Sinclair, C.B.E., was re-elected for a second year of office; he will preside over the deliberations of the Council of the Association for the period 1950-51. Mr. W. T. James, O.B.E., and Mr. R. I. H. Longman were re-elected Vice-Chairmen for the ensuing year.

INSTITUTION OF CIVIL ENGINEERS

The Council of the Institution of Civil Engineers for the session 1950-51 (commencing November 7) is composed as follows:—

President: Mr. W. H. Glanville.

Vice-Presidents: Messrs. A. S. Quartermaine; H. F. Cronin; W. P. Shepherd-Barron; D. M. Watson.

Members of Council: Sir Stanley Angwin; Sir Donald Bailey; Professor J. F. Baker; Messrs. J. A. Banks (Glasgow & West of Scotland); G. Baxter; H. E. Campbell (Northern Ireland); J. Chambers (India); C. L. Champion; J. T. Chester (Colonies); J. Cross (Ceylon); A. C. Dean (North Western); R. H. Edwards (South Wales & Monmouthshire); Professor R. H. Evans (Yorkshire); Messrs. E. L. Everatt (Pakistan); H. J. F. Gourley; R. R. W. Grigson; W. P. Haldane (Edinburgh & East of Scotland); H. J. B. Harding; A. C. Hartley; T. H. Hogg (Canada); A. C. Hughes (Southern); G. H. Humphreys; Sir Claude Inglis; Messrs. G. M. McNaughton; H. J. B. Manzoni; G. G. Marsland (South Western); R. W. Mountain; W. L. Newnham (New Zealand); Professor A. J. S. Pippard; Messrs. J. Rawlinson; C. L. Robertson (N. & S. Rhodesia); T. H. Silk

(Australia); A. W. Skempton; Professor W. G. Sutton (South Africa); Messrs. J. C. L. Train; W. H. S. Tripp (Northern Counties); F. C. Vokes (Midlands); Sir Hubert Edmund Walker (Colonies); Messrs. W. K. Wallace; J. P. Watson; Sir Arthur Whitaker; Messrs. G. Wilson; R. M. Wynne-Edwards.

Four past-presidents are to be appointed by the Council in November next.

The General Electric Co. Ltd. has announced the appointment of Mr. M. R. Neville, M.C., M.A., A.M.I.E.E., as Manager of the Publicity Organisation of the company, to succeed Mr. C. Pinkham, who is retiring on June 30.

Mr. J. Blake Middleton was recently elected a Director of the Vacuum Oil Co. Ltd. in succession to Sir Alexander McColl, who has retired. Mr. Blake Middleton will take charge of the Manufacturing Department and be responsible for the new refinery at Coryton.



Mr. C. W. Barclay

Appointed Staff Officer (Operating Staff),
Railway Executive Headquarters

Mr. R. H. Hacker, Chief Officer (Continental), Railway Executive, has been appointed a Chevalier de l'Ordre du Mérite Commercial by the French Minister of the Interior and of Commerce, in recognition of valuable services rendered to Anglo-French trade relations, and of the prominent part he has played in international conferences between the two countries. Mr. Hacker already holds the rank of Officier de la Légion d'Honneur.

Mr. H. C. Talbot, General Agent for Belgium of the British Railways, Brussels, has been appointed a Chevalier de l'Ordre de la Couronne in recognition of services rendered in the cause of Anglo-Belgian relations during the years he has spent in Brussels.

Mr. C. W. Barclay, who, as recorded in our May 19 issue, has been appointed Staff Officer (Operating Staff) at the Railway Executive Headquarters, London, joined the service of the Caledonian Railway in 1912, in the office of the District Superintendent, Glasgow Central. He served with the Scottish Horse and the Machine Gun Corps from 1915 to 1919 and on being demobilised he returned to staff work in the Glasgow District Office. As a result of the 1923 Grouping the Glasgow District Office was closed in 1925, and Mr. Barclay was transferred to the office of the General Superintendent, where he was employed in various sections of the Staff Department and in the Engine Co-ordination and Research Section. He occupied the position of Clerk in Charge of the Motive Power Staff Section and subsequently was appointed Chief Staff Clerk in the office of the Operating Manager, Glasgow. When the Scottish Regional Staff Office in Glasgow was set up on January 1, 1948, Mr. Barclay was appointed Wages Assistant to the Regional Staff Officer, which position he retained until his appointment at Railway Executive Headquarters.

Mr. H. R. Fox, B.Sc., M.Inst.C.E., who has recently retired from the position of General Manager of the Jamaica Government Railway, was born in Jamaica in November, 1889. He was educated at Epsom College, England, and graduated as B.Sc., Mining & Civil Engineering, from



Mr. L. W. Ibbotson

Appointed Assistant to the Operating Superintendent,
Western Region

the Massachusetts Institute of Technology in 1912. Mr. Fox worked on railways in Canada and in the West Indies from 1912 to early 1915, and served with the Royal Engineers in France from 1915 to 1918, retiring with the rank of Captain. From 1919 to 1921 he served as District Engineer, P.W.D., British Guiana, and as Engineer in the bauxite mines on the Demarara River. From 1921 to 1926 he worked on the Jamaica Government Railway as Construction Engineer, and he was appointed Chief Engineer in 1926. As from January 12, 1939, Mr. Fox was appointed also the first General Manager of the Jamaica Government Railway (the principal executive officer had been known formerly as Director). He remained General Manager & Civil Engineer until 1949, when he relinquished the latter post, and retained that of General Manager.

Mr. L. W. Ibbotson, who has been appointed Assistant to the Operating Superintendent, Western Region, British Railways, entered the service of the former L.N.E.R. as a Traffic Apprentice in 1927. After six years' training in the Southern, Scottish and North Eastern Areas he was appointed, in 1933, Assistant Yard Master, West Hartlepool. He then occupied various posts in the District Offices at Darlington, and Newcastle, and was appointed Assistant District Superintendent, York, in 1941. A year later he became Trains Assistant to the Superintendent and Locomotive Running Superintendent. In 1945, after a short period as Acting District Superintendent, York, he was promoted as District Superintendent, Darlington.

Mr. G. J. A. Lindenberg, who was recently Chief Technical Manager, South African Railways, Johannesburg, has been appointed Advisory Engineer to the High Commissioner for the Union of South Africa, London, in succession to Mr. W. H. W. Maass, who is to return to duty in South Africa.

Mr. Quentin More, who has been appointed Assistant Traffic Superintendent, Tabora, East African Railways & Harbours, was educated at Bootham School, York, and joined that L.N.E.R. in 1933 as a trainee in the Catering & Hotels Department, later transferring to the Traffic



Mr. Quentin More

Appointed Assistant Traffic Superintendent, Tabora,
East African Railways & Harbours

Department, North Eastern Area. He was subsequently trained as a Traffic Apprentice in the Operating & Commercial Departments of the Southern Area. During the war he served with the Royal Engineers in India, attaining the rank of lieutenant-colonel. On demobilisation he rejoined the L.N.E.R. in charge of the Development, etc., Section in the District Goods and Passenger Manager's Office, Peterborough, and was subsequently transferred to similar posts at Leeds and Edinburgh. He was until recently in charge of the Transit & Cartage Section, District Commercial Office, Edinburgh, Scottish Region.

BRITISH ENGINEERS' ASSOCIATION

The result of the ballot for the election of Council members, which was announced at the annual general meeting of the British Engineers' Association on June 8, showed that the following was elected:—Mr. E. W. Thompson, M.A., Chairman & Joint Managing Director, John Thompson Water Tube Boilers Limited.

Retiring members who were re-elected in the ballot were:—Messrs. George Bryden, M.I.I.A., M.I.A.E., Joint Managing Director, Marshall Sons & Co. Ltd.; G. F. Davies, A.M.Inst.C.E., A.M.I.Mech.E., Director & London Manager, Hick, Hargreaves & Co. Ltd.; K. Fraser, M.A., A.M.Inst.C.E., M.I.Chem.E., Chairman & Managing Director, W. J. Fraser & Co. Ltd.; C. D. H. Macartney-Filgate, Joint Managing Director, Tubes Limited; Major R. Miles, B.Sc., M.I.Mech.E., Chairman & Managing Director, Head, Wrightson & Co. Ltd.; Messrs. J. F. R. Mitchell, M.I. & S.Inst., M.Inst.Fuel, M.Inst.Welding, Director & General Manager, Mitchell Engineering Limited; J. G. W. Pawlyn, A.C.A., Director, Ransomes, Sims & Jefferies, Limited; P. A. Sanders, C.B.E., D.L., J.P., A.M.I.Mech.E., Director, Davey, Paxman & Co. Ltd.

We regret to record the death on June 7, at the age of 76, of Colonel R. J. Done, D.S.O., who served in the Royal Engineers from 1894 to 1922. In 1898 Colonel Done was selected by Lord Kitchener for special duty in connection with railway construction in Egypt and the Sudan in the campaign against the Mahdi.

London Area Passenger Charges Scheme

Objections to tram-bus conversions: Trade union opposition to increased charges

Mr. W. A. Parker, Consulting Electrical Engineer, in giving evidence on behalf of the London Passengers' Association at the resumed inquiry into the London Area (Interim) Passenger Charges Scheme on June 14, expressed the view that trams are more economical than buses because they carry more passengers. The modern bus, he said, carried 56 passengers, and the present tram 74. A new type of tram was capable of carrying 84 passengers.

The change from trams to buses would involve increased costs and extra staff, and the replacing of about 850 trams by 1,100 buses would cause more road congestion. If one compared the 84-seat tram with a 56-seat diesel bus on a 10 m.p.h. running basis the cost of electricity for the tram would be 2.2d. a car-mile and for the bus it would be 2.95d. a mile. While a new bus cost about £4,000 and a new tram about £6,000, the tram had at least twice the life of a bus. Buses were also entirely dependent on imported fuel. Anyone going around London could see that tram track was not being maintained properly.

The President, Sir William Bruce Thomas, K.C., asked Mr. R. Reader Harris, M.P., also for the L.P.A., whether this evidence was leading to the suggestion that the conversion of trams to buses, which had been authorised by Parliament, should not be proceeded with, and Mr. Harris replied that the Association thought the conversion should be postponed, because it would only increase the cost of running London Transport and it would mean doing away with workmen's fares.

Mr. D. J. Turner-Samuels, for the London Trades Council, then called a number of witnesses representing a cross-section of workers in the London area to give details of the effect of fare increases and the abolition of workmen's tickets.

Shift Workers' Tickets

Mr. John Reid, District Secretary of the North London Committee of London Amalgamated Engineering Union, speaking for 34,000 members, said that, regarding the abolition of shift workers' tickets, resolutions from a number of branches showed that in the event of a staggering of hours to overcome a fuel shortage, workers would refuse to stagger their hours. His organisation was of the opinion that workers paid far too much in fares, and there should be a reduction rather than an increase. They thought any extra money required should be obtained from a State subsidy.

Mr. Lawrence L. Harris, Assistant Secretary, Holborn Trades Council, said it had occurred to him that there was a possibility of a strike of passengers amounting to "either a refusal to pay the proposed new fares, or, alternatively, a refusal to go to work if it involved new fares."

Mr. Julius Jacobs, Secretary, London Trades Council, which represents some 670,000 workers in the London area, said that in all his experience as a trade union official he had never known any other single scheme to have aroused so much opposition as the fare proposals now put forward by the B.T.C. They had received well over 100 resolutions from trade unions and other organisations in the London area, and in addition they had collected so far about 250,000 signatures of protest.

Earlier in his evidence Mr. Jacobs had submitted recommendations from an area

branch of the Electrical Trades Union suggesting that the B.T.C. compensation stock should be reduced by at least 25 per cent. and the rate of interest reduced from 3 per cent. to 2½ per cent.

When the inquiry was continued on June 15, the eighteenth day, Mr. Colin Pearson, K.C., for the B.T.C., said that he would recall Mr. R. H. Wilson, Comptroller of the British Transport Commission, to deal with the points raised by Mr. S. W. Hill, a financial adviser called by the Middlesex County Council.

Mr. Wilson said that it was the financial policy of the B.T.C. rather than details of accountancy calculations or methods of operation which had been called into account. The general view advanced by the objectors was that the Commission was setting itself an unnecessarily burdensome task, and that it could relieve itself of half of that task and relieve London travellers.

Mr. Wilson stressed that the B.T.C. had exercised much thought on the financial matters concerned, and that it would be very surprised to find that the decisions come to could be described as improper or fallacious. They were considered perfectly sound and proper, and he thought it only common prudence to budget for a margin and a reserve.

B.T.C. Subsidy

Referring to the suggestion made on behalf of the T.U.C. that the B.T.C. should receive a State subsidy to solve its financial problem, Mr. Wilson expressed the view that any undertaking working on a subsidy of that sort was likely to be an unhealthy undertaking. It was the B.T.C. policy that it should not be placed in the position of receiving a subsidy.

Evidence for the objectors was resumed on June 16, when Mr. A. H. Geary, District Organising Officer, Metropolitan District of the National Association of Local Government Officers, put the case for more than 40,000 members in the London area. He submitted a memorandum pointing out that the concessional early morning fares provided for would not as a rule apply to these members. The higher cost of travel would be a serious additional burden, as the rates of pay of the majority of the members affected had increased by only 35 per cent. since 1939, as compared with an increase in the cost of living of not less than 80 per cent.

The memorandum concluded that the objection to the draft scheme was "that the concessional fares applicable to workmen and other early morning passengers should be applied generally to all employees who are compelled to travel in order to reach a place of employment."

Asked by Mr. Lionel Heald, K.C., for the B.T.C., how he thought the finances should be made up, Mr. Geary said he favoured the State subsidy proposal, whereupon the President pointed out that so far as the Tribunal was concerned that was impossible as the law stood. Under the provisions of the Transport Act the Commission had to pay its way.

An application by Mr. R. Reader Harris that either Sir Cyril Hurcomb, Chairman, British Transport Commission, or Lord Latham, Chairman, London Transport Executive, should be called to answer questions on policy was rejected when the hearing was resumed on June 20.

Mr. Lionel Heald said he made it clear

when his inquiry started on May 2 that he would be calling only Mr. Valentine and Mr. Wilson and he thought Mr. Harris could have made his application when the case for the B.T.C. was closed.

The President said the Tribunal was satisfied that the evidence which had been laid before them, with the evidence still remaining to be heard, was adequate to enable them to perform their functions under the Act. He did not think Mr. Harris was correct in referring to Mr. Valentine as a departmental officer. Mr. Valentine was one of the London Transport Executive and therefore was likely to be able to give the Tribunal more informed information than any other witness. Mr. Wilson was Comptroller of the B.T.C., and he did not think the Tribunal could obtain more relevant information from the financial point of view than he had been able to give them.

Strong opposition to the scheme was voiced by Mr. W. Wyatt, Secretary of the Dagenham Trades Councils, who said that because Dagenham lacked industrial development, people had to travel to their work, and over a long period of years they had been forced to pay extremely high rates for that travel. The obvious and practical way to remove the anomalous position would be to accept the average rate of travel. But it appeared to be the case that, instead of removing the anomalies, the B.T.C. had now made the position worse.

A warning that fare increases would increase the serious problem of cyclists on the roads during rush hours was given by Mr. F. Watts, Secretary of the Essex Federation of Trades Councils, who said that for many years bus driver members had been seriously perturbed at the strain thrown on them driving along roads crowded with cyclists. He felt very strongly that any increase, however small, in the fares charges, would add to this very serious problem.

Mr. A. Capewell, K.C., closing his case on behalf of the Middlesex County Council, submitted that the London Transport Executive had paid its way, and could pay its way.

The hearing was adjourned until June 21.

COSTA RICA RAILWAY.—For the year ended June 30, 1949, the 44th year of the working of the Costa Rica Railway on behalf of the Costa Rica Railway Co. Ltd. by the Northern Railway of Costa Rica, the amount received on account of annual payments under the working agreement was £24,272, against £18,576 for the preceding year; this, with income from investments and sundry fees, gave a total income of £29,270. Interest on first mortgage debentures was £42,575, as for the preceding year, and with sundry items of expenditure resulted in a loss for the year of £21,235 (£24,458). The annual appropriation for the sinking fund for redemption of first mortgage and second debentures and debit balance brought forward from 1947-48 total £304,881, so that the debit balance carried forward is £329,116. While the full year's interest has been met on the first mortgage debentures, no payment is possible in interest arrears on the second debentures.

British Transport Commission Statistics (Period No. 4)

Summary of the principal statistics for the four-week period ending April 23

STAFF

	B.T.C. Head Office	British Railways	London Transport	British Road Services (Road Haulage)	Road Passenger (Provincial & Scottish)	Hotels & Catering	Ships & Marine	Inland Waterways	Docks, Harbours, Wharves	Railway Clearing House	Common Services : Commercial Advertise- ment	Legal	Total
Number ...	209	621,267	99,022	71,331	58,251	17,682	6,309	5,159	19,634	648	161	273	899,958
Inc. or dec. ...	—1	+ 897	+ 23	+ 151	+ 268	+ 329	+ 303	—	+ 188	+ 1	—	—	+ 1,781

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS

	Four weeks (Period No. 4)		Aggregate for 16 weeks	
	To April 23, 1950	To April 23, 1949	1950	1949
	£000	£000	£000	£000
British Railways—				
Passengers	8,575	9,171	27,492	29,007
Parcels, etc., by passenger train ...	2,196	2,183	8,541	8,732
Merchandise	5,806	5,835	24,737	25,241
Minerals	2,287	2,170	9,398	9,290
Coal & coke	5,190	5,024	21,911	21,300
Livestock	93	90	350	375
	24,147	24,473	92,429	93,585
British Railways—				
Delivery & other road services ...	633	660	2,624	2,623
Ships and Vessels	649	622	2,153	2,109
London Transport—				
Railways	1,094	1,129	4,416	4,475
Buses & coaches	2,354	2,493	9,191	9,307
Trams & trolleybuses	817	871	3,241	3,314
	4,265	4,493	16,848	17,096
British Road Services—				
Freight charges, etc.	4,259	1,613	17,343	5,795
Road Passenger Transport	2,659	2,626	9,619	9,401
Docks, Harbours & Wharves	904	806	3,444	3,206
Inland Waterways	110	108	460	469
Hotels & Catering	1,084	986	4,077	3,777

LONDON TRANSPORT

	Passenger journeys	Inc. or dec. per cent. over 1949	Car miles	Inc. or dec. per cent. over 1949
	000		000	
Railways	48,261	—2.44	17,475	+0.58
Buses & coaches	206,889	—3.15	23,776	+1.79
Trams & trolleybuses	88,656	—4.89	8,495	+1.63
Total	343,806	—3.51	49,746	+1.34

INLAND WATERWAYS Tonnage of traffic and ton-miles

	Tonnage origin- ating	Inc. or dec. per cent. over 1949	Ton miles	Inc. or dec. per cent. over 1949
Coal, coke, patent fuel & peat	000		000	
Liquids in bulk	424	+4.17	6,380	+12.11
General merchandise	127	-8.00	2,940	+0.85
	268	+1.62	4,472	+4.39
Total	819	+1.26	13,792	+3.83

BRITISH RAILWAYS Rolling Stock Position

	Operating stock	Number under repair	Available operating stock	Serviceable stock in 1949
Locomotives	19,192	3,446	15,746	15,969
Coaching vehicles	56,932	5,047	51,885	50,076
Freight wagons	1,104,167	85,529	1,018,638	1,061,340

BRITISH RAILWAYS Passenger Journeys (Month of March, 1950)

Full fares	Monthly returns	Excursions, cheap day, etc.	Other descriptions	Workmen	Season tickets	Total	Inc. or dec. per cent. over 1949
4,057,000	13,620,000	13,950,000	3,767,000	20,067,000	20,424,000	75,885,000	+2.35

BRITISH RAILWAYS Freight Tonnage Originating and Estimated Ton-Miles (Period No. 4)

	Minerals	Merchandise	Coal & coke	Livestock	Total	Inc. or dec. per cent. over 1949
Tons originating	000	000	000	000	000	
Ton-miles	4,601	3,894	12,422	68	20,985	+ 1.82
	386,122	526,623*	753,618	—	1,666,363	+2.13

* Includes livestock

BRITISH RAILWAYS (Period No. 4)

	Total steam coaching train-miles	Total electric coaching train-miles	Total freight train-miles	Freight train- miles per train engine-hour	Net ton-miles per total engine-hour	Locomotive coal consumption	
						Total tons	Lb. per engine-mile
	14,293,000	3,672,000	10,436,000	8.54	598	1,037,000	63.66
Inc. or dec. per cent. over 1949	+0.68	+3.93	+1.37	+2.03	+4.91	+1.81	+1.33

Ministry of Transport Accident Report

*Southern Region, British Railways:
December 9, 1949*

Lt.-Colonel G. R. S. Wilson, Chief Inspecting Officer of Railways, Ministry of Transport, inquired into the accident which occurred at about 6.42 p.m. on December 9, 1949, at Victoria (Eastern). The 4.55 p.m. "Golden Arrow" express from Dover, traversing a facing crossover under clear signals to No. 8 platform, converged on a light engine which had overrun the up relief line inner home signal and tilted it over foul of the down local line from the Central Section, so that the 6.40 p.m. electric train to West Croydon, which was leaving No. 9 platform under clear signals, struck the engine. There were no casualties in the express, but in the local train, in which panelling was damaged and windows smashed, eight passengers sustained cuts and slight injuries, but none needed to be detained in hospital. The guard of this train and the driver and fireman of the light engine were slightly injured.

The express consisted of eight Pullman cars, drawn by a 4-6-2 "Battle of Britain" class engine, and the light engine was of the same class; both were running chimney first. The express was not derailed, and was stopped 95 yd. beyond the point of collision.

The weather was fine and visibility in the dark was not much affected by the slight haze. The accompanying diagram shows the lines, signals, and so on, concerned in the case.

The entire layout is track circuited, with electrically-operated points and signals.

The running signals are colour-lights, supplemented by route indicators or junction indicators, as required, and the shunt and subsidiary signals are of the 2-position flood-lit pattern, with coloured bar on a circular background plate. Signal 172, which was cleared for the express, the route indicator alongside showing the number "8," required points 129, 116 and 115 reversed and ground signals 144 and 145 "off." The subsidiary discs 149 and 151 authorise movement only as far as the next ground signal, and no route indication appears when they are cleared.

Approach curvature prevents signal 151 being seen from the left-hand side of a "Battle of Britain" class engine until the cab is 39 yd. from it. At this point the corresponding main-line signals cannot be seen at all. Colonel Wilson found that this signal, although its background disc was not perfectly clean, could be clearly distinguished from the right-hand side at about 150 yd. The entire group of home signals can be seen from the right-hand side at 260 to 270 yd.

Evidence

If the "Golden Arrow" is punctual, the light engine, on arrival at the home signal, is drawn forward by signals 151, 145, 144 to enable it to be attached to the stock in No. 8 platform, but on this occasion the express was 12 min. late and the up relief line signals were at danger against the light engine.

The signalman in general control of incoming traffic, on receipt of the train descriptions for the engine and the express, cleared signal 172 to No. 8 platform, and as his colleague had cleared Nos. 38, 39, 41, and 45, all signals were then at green for the main line. On the relief line 45 was at green and 41 at yellow. He watched the approach of the express on the diagram

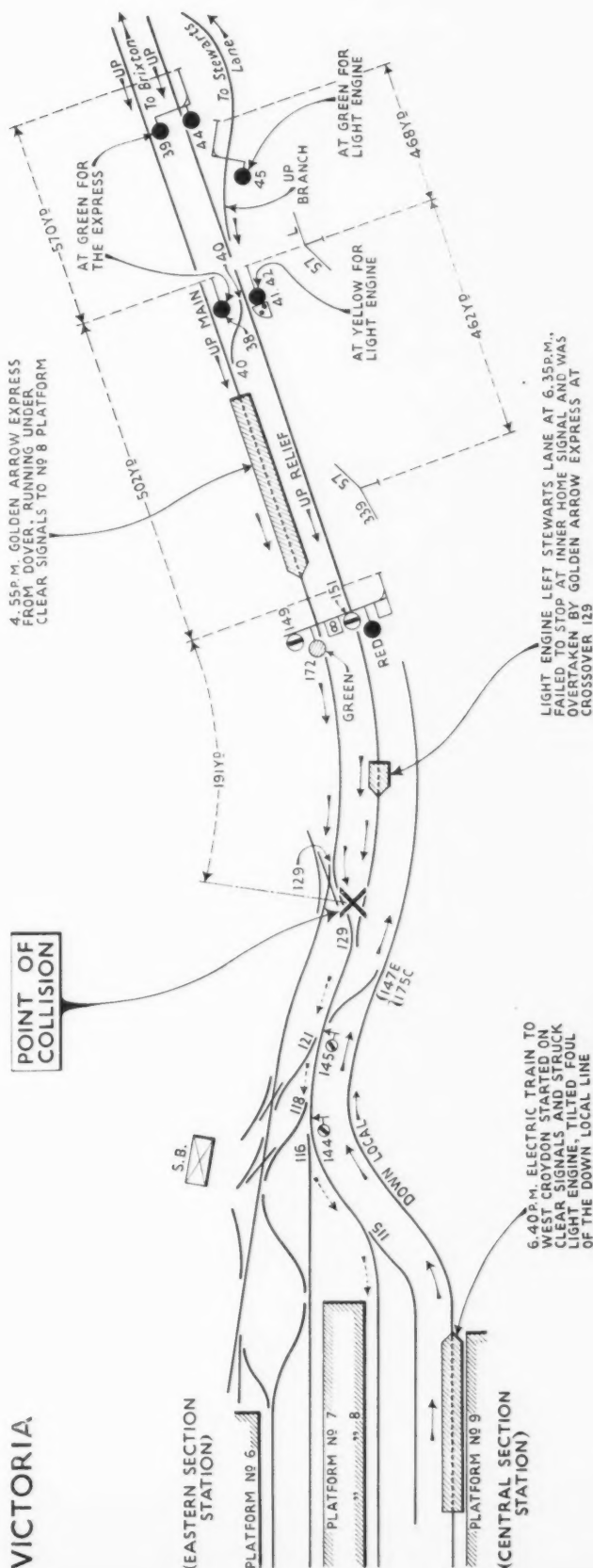


Diagram illustrating circumstances of accident at Victoria, Southern Region, on December 9, 1949

and, looking out of the window, saw the lights of an engine on the relief line and exclaimed, "There is something happening here." After the collision he checked the position of the levers in the frame and condition of the repeater indications, and found nothing incorrect. This evidence was confirmed by an inspector in the box and by the signal maintenance staff, who found the equipment in proper order.

The driver of the "Golden Arrow" said he approached under clear signals, and although he did not see signal 172 until close to it, his fireman had told him it was at green. Reducing speed to 10 m.p.h. for crossover 129, he saw through the front cab window the tender of the engine converging on his left, but no tail light, although there was evidence that it was alight. The next moment the engine was hitting the side of his cab. As there was a roar of steam from under his engine after he had stopped he told his fireman, who confirmed his evidence, as did the guard, to throw out the fire.

The electric train started from platform 9 in the ordinary way on a green signal and had attained a speed of about 30 m.p.h. The motorman and guard were both taken by surprise by the collision.

The driver of the light engine, who was 49 years of age and had 25 years' service, all spent at Stewarts Lane shed, had been appointed driver 15 months before, after 3½ years as passed fireman. He had been employed frequently on working empty stock from Victoria with "Battle of Britain" class engines. His regular fireman was not with him, and he had a passed cleaner, only 16½ years of age. He left Stewarts Lane at 6.35 p.m. to work the "Golden Arrow" stock back. He saw signal 45 at green and 41 at yellow and 38 at red—it had not been cleared by then for the express—and after passing 41 was prepared to stop at the inner home. Looking through the open left-hand cab window he saw this at red at close range, travelling at a walking pace, and thought he saw No. 151 "off" for him. The express overtook him as he was looking for No. 145. He frankly admitted his mistake, and had made every endeavour to account for it, but could not, and much regretted it. He would have relied on an experienced fireman to observe signals from the right, where there was a much longer view, but could not have expected such assistance from so young a man. He did not cross the footplate, being reluctant to leave control of the brake on the steep falling gradient. It was quite usual for him to be held at the inner home for the "Golden Arrow" to pass, and he was not expecting to go right through. He was perfectly fit, had slept well, and had no private anxieties to distract his attention.

The fireman did not see any of the signals, as he was attending to the fire and the injectors.

Chief Inspecting Officer's Conclusion

The three movements were correctly signalled, and there can be no doubt that signal 151 was at danger when the light engine approached and passed it. The driver must accept full responsibility for the collision. In the absence of contrary evidence, Colonel Wilson can only attribute his failure to lack of concentration on his task at a critical moment, and, while he was right in not trusting to a very young fireman to observe signals, he seems to have been unfair to himself in not crossing the footplate, if necessary more than once. The signal was continuously in view from the right-hand side for more than 250 yd. It would appear to have been his duty in the circumstances, and his suggestion of danger arising from his absence from the brake controls is not

acceptable. He is regarded as a steady type of man; it is to his credit that he made no attempt to excuse his failure. His record hitherto has been clear. No responsibility rests on the driver of the "Golden Arrow" or the motorman of the electric train.

Remarks

The collision, which might have had much more serious consequences if the derailed engine had inclined a little farther in the path of the electric train, appears to have been due to carelessness on the part of an experienced engineman who misread a simple signal indication, but automatic train control of the warning type would not have been effective, as he had seen the signal in rear at yellow and was prepared for a stop at the inner home. It is not possible to give a long-range view of the inner homes from the left of the footplate, but, with the comparatively low-speed approach to a terminus, there is an adequate view from the other side, as is well known to enginemen. The overrun distance of 191 yd. from the inner homes to the fouling point at crossover 129 is also sufficient in the circumstances, and Colonel Wilson considers there are no grounds for criticising the layout of the signalling.

Institution of Railway Signal Engineers

Annual summer meeting in Dublin

The annual summer meeting of the Institution of Railway Signal Engineers was held in Dublin from June 2-4. This was the first occasion on which the Institution has visited Ireland. The party travelled via Holyhead on June 1, and was led by the President, Mr. F. Horler, supported by the two Vice-Presidents, Mr. S. Williams and Mr. T. S. Lascelles; Messrs. A. F. Bound, F. Downes, and R. Dell, Past Presidents; Messrs. W. Owen, D. G. Shipp, F. B. Eglington, and M. Le Sueur, Members of Council; Mr. G. J. Dickinson, Hon. General Secretary; Mr. B. Reynolds, Hon. Treasurer; and Mr. W. H. Challis, Hon. Secretary of the General Purposes Committee, responsible for the arrangements. A number of ladies accompanied the members.

The visitors were entertained to lunch on arrival by Coras Iompair Éireann, and were welcomed by the Signal & Electrical Engineer, Mr. H. J. Guthrie, who expressed the pleasure of the management in being able to receive the Institution. He hoped they would be able to show them something of interest.

Their Dublin installations, said Mr. Guthrie, were the result of having to economise, reduce the number of signal boxes, and cut down capital expenditure, and they had manufactured their own form of power lever frame for that purpose.

Some considered power signalling the beginning and end of signalling, but mechanical equipment had not yet had its day. They had taken the opportunity to standardise, and he thought that some of the apparatus on view might convey useful ideas. They had taken considerable steps towards replacing timber by concrete.

After Mr. Horler had thanked Mr. Guthrie and the C.I.E., members inspected the Kingsbridge power signalling installation, the special features of which proved of much interest. The installation controls an area previously worked from several signal boxes. In explaining the equipment Mr. Guthrie was assisted by his Chief Assis-

tant, Mr. R. L. Cant, and other members of the staff. Alongside the signal box was arranged an interesting exhibition of standard designs.

On June 3, a visit was paid to the brewery of Arthur Guinness Son & Co. Ltd. and a coach trip was made to Bray, while in the evening an informal dinner was held, with Mr. F. Horler, President, in the chair, supported by Mr. T. C. Courtney, Chairman, Coras Iompair Éireann, and the then General Manager, Mr. F. Lemass.

Mr. Horler said he would like to thank the C.I.E. for the welcome afforded to members. He would also congratulate C.I.E. on having an Electrical & Signal Engineer of the competence of Mr. Guthrie to whom and his staff their thanks were also due.

They were glad to have with them Mr. D. J. Vernon, Assistant Signal & Telegraph Engineer, New South Wales Government Railways, who brought greetings from the Australian Section of the Institution.

Mr. T. C. Courtney, replying, expressed the pleasure of the management of C.I.E. in being able to welcome members of the Institution. He also appreciated the tribute paid to Mr. Guthrie.

On Sunday, a circular coach tour through County Wicklow was made, stopping at Glendalough for lunch and concluding at Dun Laoghaire, where tea was served prior to embarking on the return boat to Holyhead.

Parliamentary Notes

British Transport Commission Bill

When the British Transport Commission Bill as amended in Committee came before the House of Commons on June 13 on the report stage, objection was raised to it, and consideration was deferred.

Petrol Tax

Surgeon Lt.-Commander R. Bennett (Gosport and Fareham—Con.), speaking in the House of Commons on June 14 in Committee on the Conservative amendment to the Finance Bill to abolish the increase of 9d. in the petrol tax, said that in his constituency they had a small bus company, the Gosport & Fareham Omnibus Company, which carried an enormous amount of traffic. For 50 years, ever since it started with horse trams, the company had never increased its fares, and for ten years past, during which time the cost of wages and other expenses had risen by £35,000 a year, this company had so increased its traffic and efficiency as never to ask for more money in fares. Now had come this blow, which would cost the company £9,000 a year straight away.

Mr. Hugh Gaitskell (Minister of State for Economic Affairs) said that the tax was introduced to provide the necessary finance to secure the reduction in the rate of income tax from 6s. to 5s. and from 3s. to 2s. 6d. on the first part of income subject to taxation. The actual amount of revenue to be raised by the petrol duty was expected in the first year to be £68½ million, and the income tax reliefs cost £72 million.

Mr. R. H. S. Crossman (Coventry East—Lab.) said that he had made a calculation of the comparative cost of road and rail transport to the ordinary person. If he was travelling from Oxford to London by road, and took his wife with him, in a 10-h.p. car, allowing something for depreciation as well as for oil and petrol, the amount came to 14s., but by rail it

would cost £2. If the Opposition were not prepared to give a subsidy to the railways, which in his opinion was necessary, they could not possibly resist this slight increase in charges which still left motor-ing more than twice as cheap as third class rail travel between two cities in this country.

Mr. Peter Thorneycroft (Monmouth—Con.) said that what the Chancellor of the Exchequer had done had been to force up the costs on one side of the transport industry to keep pace with rising costs on the other. Few members on the Government side realised the damaging blow that taxation of that kind was to the transport system. Within a span of ten days, the Chancellor had increased charges on the transport industry amounting to £120 million a year, of which this one item represented, he thought, £68 million. The road haulage part of the industry was carrying £225 million in taxation. The Road Haulage Executive had put up its charges by 7½ per cent., but it had really put them up a good deal more than that, because 7½ per cent. was the minimum, and it held itself free to put up the rates even more.

Lt-Colonel Sir Walter Smiles (Down, North—U.U.) said that in Northern Ireland at one time the railways paid the highest dividends of any in the United Kingdom; that was from 1890 to 1900. They had very short hauls and large numbers of passengers and they seemed to make very good dividends out of them. Now that those short hauls made the worst dividends and losses instead of profits, various railways had been abandoned, and more would be abandoned in the future, he thought.

Sir Stafford Cripps (Chancellor of the Exchequer) said he had come to the conclusion that this duty would have no effect on the relationship between road and rail transport. If he had intended it to have such an effect, it would have been necessary to put on a duty of something like 3s., 4s. or 5s. on petrol to get a big enough difference to influence traffic. Mr. Thorneycroft had said that the fact that

the road transport authority had increased its rates by 7½ per cent. showed that the Treasury estimate of 4 per cent. increased costs could not be right. A simple calculation showed that the extra cost would be 4 per cent., taken on the known and ascertained costs of running such transport, and if he read the statement issued by the authority he would see that that specifically covered a number of other items in addition to the petrol duty. It covered an accumulation of pay increases which had not that day been dealt with, and it covered the new purchase tax on vehicles and other items.

The amendment was defeated by 302 to 288 votes.

Staff & Labour Matters

N.U.R. Wage Claim

The N.U.R. has continued to press its claim with the Railway Executive for an improvement in rates of pay for lower-paid railwaymen. Meetings took place between union officials and Sir Eustace Missenden, Chairman of the Railway Executive, accompanied by Mr. W. P. Allen, Member of the Executive for staff matters, on May 26 and June 13. At the first of these meetings the union representatives explained the grounds on which their application was based, and a further exchange of views took place at the second meeting on June 13. The discussions were continued between representatives of the N.U.R. and Mr. W. P. Allen on June 20.

A statement which appeared in the press, on June 15, to the effect that an offer respecting lower-paid railwaymen had been made by the Railway Executive to the N.U.R. was the same day denied by the Executive, who announced that the two meetings which had been held were purely informal for the purpose of an exchange of views on the union claim.

Under the negotiating machinery the Railway Executive would not be in a position to conclude an agreement on rates of pay and conditions of service with a single

union as the other unions who are party to the machinery would need to be consulted. The R.C.A. and A.S.L.E. & F. refused to join the N.U.R. in the claim on behalf of lower-paid staff, and from resolutions adopted at the annual conferences held recently of the R.C.A. and A.S.L.E. & F., claims of an entirely different nature would appear to be contemplated.

BRITISH OXYGEN COMPANY.—The net profit for 1949 available to the British Oxygen Co. Ltd. was £1,055,047, compared with £1,200,531 for 1948. With £196,312 carried forward from the previous year the balance on appropriation account was £1,251,359. Preference dividends, amounting to £67,375, less tax, were paid. Interim dividend of 8 per cent., less tax, was paid in October, 1949, and a final ordinary dividend of 12 per cent., less tax, is being paid, making 20 per cent. for the year. The general reserve receives £350,000, leaving a balance to be carried forward in the parent company's accounts of £200,463.

CLACTON INTERVAL SERVICE, EASTERN REGION.—On the introduction of a new Eastern Region hourly service on weekdays between Liverpool Street and Clacton, Mr. C. K. Bird, Chief Regional Officer, travelled on the first train which left Liverpool Street at 9.30 a.m. on June 5, arriving at Clacton at 11.20 a.m. Also included in the party, and shown in the photograph reproduced below, were Mr. C. G. G. Dandridge, Commercial Superintendent; Mr. J. W. Dunger, Assistant Commercial Superintendent; Mr. M. B. Thomas, Public Relations & Publicity Officer; Mr. S. Bollon, Publicity Assistant; Mr. I. R. Gamble, Assistant District Commercial Superintendent (London); Mr. W. F. Heaton, Assistant District Commercial Superintendent (Ipswich); Mr. A. R. Dunbar, Divisional Operating Superintendent (Eastern); and Mr. H. W. Few, District Operating Superintendent (Stratford). On arrival they were met by the Chairman and members of Clacton Council, and after a tour were entertained to luncheon.



Group at Liverpool Street Station on June 5, before departure of the first train of a new Eastern Region hourly weekday service to Clacton (see paragraph above)

Notes and News

Draughtsman (Civil Engineering) Required.

—A draughtsman (civil engineering) is required by the Nigerian Government Railway for one tour of 18 to 24 months in the first instance. See Official Notices on page 723.

Road Passenger Executive: Change of Address.—As from June 5, the address of the Road Passenger Executive has been changed to 10, Fleet Street, London, E.C.4. Telephone, City 4400; telegrams, Ropass, Fleet, London.

Members of Docks Executives Visit Ports.—Members of the Docks & Inland Waterways Executive visited the ports of Whitehaven, Workington, and Maryport on June 21 and following days, for the purpose of consulting with the harbour authorities and representatives of other interests concerned with the operation and use of the ports. The Executive was represented by Sir Reginald Hill, Chairman, and Mr. John Donovan, Member.

Irish Railway Record Society.—On Saturday, June 10, a party of members of the Irish Railway Record Society made a 300-mile excursion during which they travelled on three different Irish railways. Starting by the 8.45 a.m. "Bundoran Express" from the G.N.R. (I.) station at Amiens Street, Dublin, the party travelled to Enniskillen, where they changed to a special railbus, provided by the Sligo, Leitrim & Northern Counties Railway. They proceeded to Manorbhamilton, headquarters of that railway, and spent some time inspecting methods of operation. The party later went to Sligo for dinner in the Great Southern Hotel. The return journey to Dublin, via Coras Iompair Eireann, was by the 7.35 p.m. Night Mail to Westland Row Station.

New Type of Handbill Board.—To prevent the untidiness usually caused by hanging handbills from hooks or string the North Eastern Region of British Railways has fitted an experimental board at Leeds City Station. On the board—be-

lieved to be the first of its kind—are fixed a number of glass-fronted cases in which each handbill is permanently displayed and through the bottom of which the handbills can be drawn out by the public.

Institution of Electrical Engineers.—The summer meeting of the Institution of Electrical Engineers will be held in Cambridge from July 4 to 7.

Train Destination Indicators on the Central Line.—Work is now in hand on the provision of train destination indicators at stations on the Central Line. All east-bound platforms from Marble Arch to

Leytonstone and west-bound platforms from Liverpool Street to North Acton are to be so equipped. Installation has been completed already on eastbound platforms from Marble Arch to Liverpool Street. The indicators, which display the destinations of "first" and "second" trains, are of a new design and are constructed of aluminium. To improve their appearance and facilitate cleaning all corners are rounded and the non-reflecting glass panels are fitted flush with the frames. Suspension fittings are of oval section and all cables enter the indicators through aluminium housings. Operation is on the "ribbon storage" principle, fed from the signal boxes and the indications are changed automatically by the passage of the trains.

Park Gate Iron & Steel Works.—An extensive programme of development is being undertaken by the Park Gate Iron & Steel Co. Ltd., Rotherham, estimated to cost £2,000,000. At a recent extraordinary general meeting of the company the articles of association limiting borrowing to £1,000,000 were amended to increase

these powers to £2,500,000. Major developments include equipping the existing blast furnaces with mechanical charging and the construction of an 11-in. continuous bar mill. The design of this mill has been carried out in collaboration with the Brightside Foundry & Engineering Co. Ltd.

A.B.C. Couplers and Joco Regulators: A Documentary Film.—A pre-view of the film "Safe and Sound," produced for the A.B.C. Coupler & Engineering Co. Ltd. and its subsidiary company Wota Limited, Wolverhampton, was held in the Gaumont British Theatre, Wardour Street, London.



Aluminium train indicator on the Central Line (see accompanying paragraph)

W.I., on June 15. The film, which was introduced by Mr. J. B. Curry, Managing Director of the A.B.C. Coupler & Engineering Co. Ltd. and Wota Limited, dealt with the various products of the firm, including M.C.A. buffer couplers, the A.C.S. automatic buffer coupler, and the A.C.S. mine car coupler. Wota products illustrated included the Joco regulator valve, N.C. by-pass valve, and the Wota cylindrical buffer.

Hall Telephone Accessories Limited.—The net trading profit of Hall Telephone Accessories Limited last year was £56,209 as compared with £55,465 for the previous year. A dividend of 10 per cent., less tax, will be paid, amounting to £17,741, and the balance of £22,926 carried forward. The Chairman, Major the Hon. Oscar M. Guest, in his statement circulated with the report and accounts, records the manufacture of considerable quantities of ticket-issuing machinery for transport undertakings and extensive orders for telephone equipment for British and overseas postal authorities.

Butterley Company Results.—The group profit for 1949 of the Butterley Co. Ltd. was £93,691 against £142,797 for the previous year after deduction of £151,479 (£203,482) tax. Adjustment in respect of contingencies no longer required and profits attributable to previous years makes available £149,886 (£172,667) of which £148,123 (£171,029) is attributable to the parent company. The final ordinary dividend is to be 6½ per cent., making 10 per cent. (12 per cent.) for the year. There is also to be a distribution to ordinary shareholders of capital profit, being excess of compensation received over the book value of main-line wagons vested in the National Coal Board at the rate of 14 per cent., free of tax (nil). Since issue of the balance



Experimental bill board at Leeds City Station, with glass-fronted cases to contain excursion handbills (see paragraph above)

OFFICIAL NOTICES

Crown Agents for the Colonies

DRAUGHTSMAN (Civil Engineering) required by the Nigerian Government Railway for one tour of 18 to 24 months in the first instance. Salary, including expatriation pay, £985 a year in scale rising to £1,045 a year plus temporary allowance of £73 a year. Outfit allowance £60. Free passages for officer and wife and assistance towards the cost of children's passages, liberal leave on full salary. Gratuity on satisfactory completion of services. Candidates must have had at least five years' experience in the drawing office of a Railway Civil Engineering Department (or Consulting Engineers or Contractors with practice in railway work). Knowledge of design and construction details of civil engineering structures and railway track work is required, including ability to take off quantities, prepare estimates and draft general specifications. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/17417/3A on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

WANTED for Peruvian Railways, Assistant Locomotive Superintendent, commencing salary £1,200, and Foreman for locomotive repair shop, commencing salary £800. Colloquial knowledge of Spanish essential.—Write Box "B.J.," c/o J. W. VICKERS & CO. LTD., 7/8, Great Winchester Street, London, E.C.2.

BRITISH WORK ON PERSIAN RAILWAYS. The achievements and difficulties of the R.E.s. during the 15 months in which they laid the foundation for effective aid to Russia. Reprinted from *The Railway Gazette*, February 2 and 16, 1945. Price 1s. Post free 1s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

TRAFFIC CONTROL ON THE L.M.S.R. Co-ordination of operating arrangements as a result of grouping—Central, Divisional, and District Control—Outline of unified methods adopted—Organisation and working—Control telephone circuits—Daily telephone conferences. Paper, 12 in. by 9 in. 20 pp. Illustrated. 5s. By post 5s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

THE FIRST PASSENGER RAILWAY. By Charles E. Lee. A history of the Swansea & Mumbles Railway, which extends over 136 years. Cloth. 8½ in. by 5½ in. 91 pp. Illustrated. 5s. By post 5s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

RAILWAY SIGNALLING AND COMMUNICATIONS INSTALLATION AND MAINTENANCE. A practical guide, especially intended to help Signal Inspectors, Installers, Fitters, Linesmen, Draughtsmen, and all concerned with installing and maintaining Signal, Telegraph, and Telephone Equipment. 416 pp. Many illustrations. Cloth. 8s. By post 8s. 6d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

TRANSPORT ADMINISTRATION IN TROPICAL DEPENDENCIES. By George V. O. Bulkeley, C.B.E., M.I.Mech.E. With chapters on Finance, Accounting and Statistical Method. In collaboration with Ernest J. Smith, F.C.I.S., formerly Chief Accountant, Nigerian Government Railway. 190 pages Medium 8vo. Full cloth. Price 20s. By post 20s. 6d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

sheet, the Minister of Fuel & Power announced an issue to the company of £2,000,000 coal stocks in partial satisfaction of its claim for compensation under the Coal Industry Nationalisation Act.

Firth Brown Tools.—Preliminary figures issued by Firth Brown Tools Limited show that the net profit for the year ended March 31 amounts to £80,339. This figure is arrived at after providing £135,000 for taxation, and compares with £78,954 for the previous 15 months, when the tax charge was £265,099. A final dividend of 6½ per cent. will bring the total payment to 10 per cent., against 5 per cent. for the previous period.

"Tavern" Restaurant Car Converted.—One of the first and third class restaurant cars of the Southern Region, numbered 7836, which with a "tavern" car form a two-car buffet-restaurant set, has been provided with full-size side windows in place of the former small windows under the canopy. The seats have been turned to conform to the normal transverse arrangement. No change has been made to the interior layout of any of the cars. The sets were described and illustrated in our June 3, 1949, issue.

Transportation Centre, Royal Engineers.—This year marks the 25th anniversary of the formation of the first Royal Engineers Transportation and Movement Control units of the Supplementary Reserve, which will be celebrated with a reunion at Longmoor Camp on September 2 and 3. The annual public day will be held on Saturday, September 2, from 1.30 p.m. to 7 p.m. The general public will be able to watch demonstrations and exhibits representing the railway, port, and inland waterway activities of Transportation & Movements and physical training displays. The reunion, open to any who have served with a transportation unit, will include a church parade and march past on Sunday, September 3. Accommodation may be reserved for the night of September 2-3 in Weavers-down Camp.

International Nickel Company of Canada.—The net profit for 1949 of the International Nickel Company of Canada Limited was \$ (U.S.A.) 32,252,314, as against \$39,108,404 for 1948. After provision for dividends on preferred shares earnings were equivalent to \$2.08 (\$2.55 in 1948) per share of common stock. Common dividends were paid of \$2.00 per share in four quarterly dividends, and a year-end dividend of 40 cents each, as for 1948. Preferred dividends were paid in

four quarterly distributions at the rate of 7 per cent. of the par value of shares. The remaining sum of \$1,162,077 is retained for company requirements, comparable with \$8,018,167 retained in 1948. As the accounts of the company are expressed in U.S.A. currency, the re-valuation of British and Canadian currencies in 1949 reduced the value in terms of U.S.A. dollars of certain Canadian and British assets and liabilities.

Skefko Ball Bearing Co. Ltd.—At a meeting of the directors of the Skefko Ball Bearing Co. Ltd., on March 22, it was decided to recommend a final dividend of 7d. per stock unit of 5s., free of income tax, making 10d. per stock unit of 5s., free of tax, for the year to December 31, 1949. The balance of profit for the year was £227,094, against £205,670, after charging to taxation, £670,000, reserve for

possible future reductions in stock values, £250,000, and other provisions and land excavation charges, £49,448. Added to the balance of profit of £227,094 are provisions set aside in previous years not now required, £80,000, making available with the carry forward an amount of £483,668. Dividends take £133,333, and transfer to general reserve £200,000, leaving £150,333 to be carried forward. The annual general meeting was held on April 26: Sir Ralph Glyn, Chairman of the company, presided, and the directors' report and accounts were adopted.

Hotel Information Service.—A service for providing foreign visitors, travel agents, and transport companies with information about hotel accommodation in the London area was opened recently at the offices of the British Travel & Holidays Association, London, by Mr. A. G. Bottomley, Secre-

Helsinki Station on Fire



A serious fire broke out in Helsinki Station, Finnish State Railways, on June 14 and severely damaged the restaurant kitchen, stores, and offices

tary for Overseas Trade. The service is being directed by the British Hotels & Restaurants Association, with the support of the Travel & Holidays Association, which is setting up a similar organisation to pass on information about accommodation available in private houses and hostels.

British Electric Traction Co. Ltd.—The results given in our June 9 issue were for B.E.T. Omnibus Services Limited, and not, as incorrectly stated, for the British Electric Traction Co. Ltd., of which B.E.T. Omnibus Services is a subsidiary, and of which the results will be given in next week's issue.

Valves, Gauges and Other Safety Fittings for Land Boilers Installations.—The British Standards Institution has recently published B.S. 759: 1950, valves, gauges and other safety fittings for land boilers installations, which was first published in 1937. This standard deals with safety valves, high- and low-water alarms, stop valves, feed valves, blow-down fittings, water gauges, pressure gauges, test connections and fusible plugs. Copies may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, price 3s., post free.

Mather & Platt Limited.—The group trading profits of Mather & Platt Limited were £1,152,000, compared with £904,400 for the previous year. A dividend is proposed of 11 per cent., as for last year; this requires £82,500, while £564,000 is needed for tax and £410,000 is to be appropriated for reserves. The total of reserves is now £1,302,700, compared with the issued capital of £1,763,660. Current assets include £572,400 in cash, and exceed current liabilities and provisions by £2,718,000. Fixed assets have been written down by nearly 60 per cent. of their cost.

Derwent Valley Light Railway.—The report for the year ended December 31, 1949, of the Derwent Valley Light Railway Company shows that goods tonnage conveyed rose to 102,823 from 87,596 for the previous year. Goods receipts were £20,463, against £18,933, and net receipts £6,795, against £6,065, which, with the balance brought forward and deduction of fixed charges, makes available £5,974. The directors recommend dividends of 5 per cent. on both preference and ordinary shares, as last year, leaving a balance of £1,924 to be carried forward.

Glenfield & Kennedy Limited.—The consolidated net profit for 1949 of Glenfield & Kennedy Limited was £251,585 (£230,425) after charging £350,282 tax and crediting £4,159 provisions no longer required and other items. The net profit attributable to outside shareholders is £9,322 (£9,135) and amount retained by subsidiaries £48,746 (£90,036), leaving the net profit of the parent company £193,517 (£131,254). The sum of £100,000 (£30,000) is allocated to replacements and contingencies reserve, with no allocation (£15,000) to general reserve, giving £85,625 (£83,469) for dividends and leaving £60,633 to go forward. The final ordinary dividend is 15 per cent., making a total of 20 per cent. for 1949, as for the preceding year.

Forthcoming Meeting

June 29 (Thu.).—Road Haulage Association. Annual luncheon at Grosvenor House, London, W.1, at 12.30 for 1 p.m.

Railway Stock Market

Although business was maintained at a somewhat higher level, profit taking was more in evidence, particularly in the industrial and mining sections, although British Funds were firm, helped by satisfaction with the response to the conversion offer in respect of 2½ per cent. National War Bonds (1949-51). The revival of caution in markets is attributed in the main to the return of political uncertainties since the reassembly of Parliament and to the controversy which has arisen from the Schuman plan. Moreover, the European Payments agreement which is likely to come into force next month has also made for caution, although this should increase trade without the danger of gold or dollar losses. There is no question of the £ being made freely convertible into the dollar and no danger of a convertibility crisis similar to that of 1947. The gold and dollar reserves of the sterling area are expected to show substantial improvement for the quarter ending this month. A factor which has quietened down industrial shares after their improvement is the fear that the trade unions are likely to press higher wage claims.

There was only moderate business in foreign rails, but small selling tended to affect prices sharply, although buyers reappeared, and most stocks were only slightly lower on balance. United of Havana stocks continued to move back awaiting further news of any fresh take-over developments from Cuba. The 1906 debentures came down further to 24½. After earlier small losses, Leopoldina ordinary and preference rallied slightly to 9½ and 26½, while the 4 per cent. debentures were 91 and the 6½ per cent. 129. Antofagasta ordinary and preference were unchanged at 7½ and 42 respectively. Nitrate Rails shares were again 75s.

Great Western of Brazil were less active around 144s. Leopoldina Terminal 5 per cent. debentures strengthened to 87 and the ordinary units were 1s. 6d. After their recent rise San Paulo reflected profit-taking and came back to 16s. 10½. Brazil Rail gold bonds eased to 40½. There was again considerable activity in Canadian Pacifics, which was attributed partly to U.S. buying, but at 32½ best levels were not fully held. The preference stock was 69½ and the 4

per cent. debentures 91. National of Mexico 4½ per cent. non-assented bonds turned easier 26½ and Mexican Railway 6 per cent. debentures were 64½. French railway sterling bonds kept firm with Nord at 102 and Midi and Orleans both at 96½. Manila "A" debentures were 85, and the preference shares 7s. 9d., while the ordinary changed hands at slightly over 1s. 6d. In sympathy with the general trend British Transport stocks have been firm with the 3 per cent. (1978-88) at 90½.

Best feature among securities of companies with road transport interests has been a sharp rise in B.E.T. deferred stock to £470 on the good impression created by the financial results and the final dividend of 17½ per cent. on the capital as increased by the 200 per cent. stock bonus. Total payment absorbs rather more than £70,000 above the total of last year's dividend before the stock bonus. B.E.T. has many varied financial and industrial interests, but road transport still provides an important and regular source of its income. No doubt Mr. H. C. Drayton at the annual meeting will have further comments to make on the future of road transport and the nationalisation threat. Lancashire Transport shares held steady at 78s., West Riding were 63s., and Southdown again 115s.

Despite the Schuman plan controversy, iron and steel shares remained firm, and movements, although indefinite, have not exceeded more than a few pence. John Summers at 29s. were firm, awaiting the terms of the debenture offer, in which shareholders are expected to have preferential terms of allotment. The market continues to assume that it may be a 4 per cent. stock offered at under par and that there will be special rights of repayment in the event of nationalisation. Guest Keen were 45s. 9d., Stewarts and Lloyds 55s. 10½, United Steel 26s. 4½, and T. W. Ward strengthened to 60s. 3d. Vickers eased to 29s. 4½.

Shares of locomotive builders and engineers took their cue from iron and steels and were steady with North British Locomotive at 17s. 9d., Beyer Peacock 22s. 3d., Vulcan Foundry 20s., Gloucester Wagon 50s., and Wagon Repairs 16s. 6d. Hurst Nelson kept at 56s. 3d., Birmingham Wagon were 27s. 9d., Central Wagons 83s., and Charles Roberts 86s. 3d.

Traffic Table of Overseas and Foreign Railways

Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date	
			Total this year	Inc. or dec. compared with 1948/49		Total 1949/50	Increase or decrease
Central America	Antofagasta ...	811	11.6.50	£ 58,390 + £ 7,150	23	£ 1,367,694	—
	Costa Rica ...	281	Apr., 1950	c852,959 — c156,386	43	c8,449,421	—
	Dorada ...	70	Apr., 1950	39,295 + 9,554	17	165,766	+ c1,679,807
	Inter. Ctl. Amer. ...	794	Apr., 1950	\$1,052,533 — \$18,810	17	\$4,831,188	+ 45,455
	La Guaira ...	22½	May, 1950	\$99,200 — \$4,255	22	\$444,361	+ \$474,500
	Nitrate ...	382	31.5.50	15,158 — 4,890	21	194,106	—
	Paraguay Cent. ...	274	9.6.50	£203,338 + £98,275	49	£7,493,651	+ £2,387,167
	Peru Corp. ...	1,050	May, 1950	\$6,674,000 + \$1,515,689	48	\$64,334,058	+ \$18,415,630
	" (Bolivian Section)	66	May, 1950	Bs. 9,171,000 — Bs. 1,225,623	38	Bs. 106,682,664	+ Bs. 10,536,314
	Salvador ...	100	Febr., 1950	c239,000 — c72,000	35	c1,300,000	—
South America	Taltal ...	154	May, 1950	15,500 + 4,000	48	154,420	+ c139,665
							54,665
Canada	Canadian National†	23,473	Apr., 1950	14,659,000 + 1,207,000	17	53,550,000	+ 1,549,000
	Canadian Pacific†	17,037	Apr., 1950	9,928,000 — 118,000	17	37,654,000	— 911,000
Various	Barsi Light* ...	167	Mar., 1950	34,522 + 3,022	52	358,762	+ 22,275
	Egyptian Delta ...	607	10.5.50	18,298 — 1,794	5	70,428	— 9,071
	Gold Coast ...	536	Mar., 1950	258,498 — 8,915	52	2,806,753	+ 154,946
	Mid. of W. Australia	277	Apr., 1950	32,976 + 2,904	43	308,849	+ 18,472
	Nigeria ...	1,900	Jan., 1950	502,360 + 38,978	44	5,017,814	+ 266,573
	South Africa ...	13,347	20.5.50	1,460,653 + 4,132	10	11,047,686	+ 656,185
	Victoria ...	4,744	Feb., 1950	1,826,957 + 342,160	35	—	—

* Receipts are calculated @ 1s. 6d. to the rupee

† Calculated at £3 to £1